

RESPONSE TO COMMENTS

on the

DRAFT HAZARDOUS WASTE STORAGE AND TREATMENT PERMIT

AND

PROPOSED NEGATIVE DECLARATION

for

**LAWRENCE LIVERMORE NATIONAL LABORATORY
MAIN SITE**

EPA ID NO: CA2890012584

APRIL 1999

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INTRODUCTION

Lawrence Livermore National Laboratory (LLNL) is a national laboratory owned by the United States Department of Energy (DOE) and jointly operated with the University of California (UC). LLNL is composed of a Main Site, located at 7000 East Avenue, Livermore, California, and Site 300, located approximately 15 miles southeast of the Main Site on Corral Hollow Road near Tracy. Since 1951, LLNL has been operating research and development programs on nuclear weapons, magnetic fusion, energy, lasers, biomedical and environmental sciences, and applied energy technology. The Main Site is used for the storage and/or treatment of hazardous and mixed wastes generated onsite or at Site 300 as a result of the operation of these programs. The LLNL Main Site is required to obtain a Hazardous Waste Facility Permit for the storage and/or treatment of hazardous and mixed waste.

On November 12, 1980, LLNL submitted a Part A application to the Department of Health Services (DHS), predecessor agency of the Department of Toxic Substances Control (DTSC), for the operation of its hazardous waste management units. DHS granted the LLNL Main Site interim status on May 16, 1983. This grant allowed LLNL to store and treat hazardous and mixed waste generated onsite or at Site 300 until a final permit determination could be made on the Main Site's Part B application. This Part B application has been revised several times. DTSC reviewed LLNL's Part B application submittal dated June 28, 1996 according to Division 4.5 of Title 22 of the California Code of Regulations and found that LLNL satisfactorily met the regulatory requirements for management of hazardous and mixed waste. Based on this review, DTSC prepared a draft Permit and requested public comments on the draft Permit and CEQA documents. The public comment period was open from September 9, 1997 to December 9, 1997.

Written comments were received during the public comment period. This Response to Comments document summarizes and responds to all relevant comments received by DTSC during the comment period. Some comments presented in this document are directly quoted from the commenters while other recurring comments were summarized in a representative comment. Some comments were also edited for clarity. Each comment has been assigned a unique number between 1 and 142. Following each comment is a number or group of numbers in brackets, for example "[1.a]". This number corresponds to the individual who made that comment and is listed under the References section of this document. Throughout this document, references to other responses may be given in lieu of or as an addition to the response to that particular comment. Every effort has been made to ensure that the references are accurate and result in a more comprehensive response.

DTSC has attempted to group the comments into various categories as listed in the Table of Contents. However, you may find that certain comments could have been placed in other sections because of the similarity of the subjects.

Revisions have been made to the Permit and Parts A and B of the permit application (resubmitted October 1998) in response to the comments received. A listing of the specific changes made to the Permit and the application is located at the end of this document.

DEFINITIONS

The term "Project" refers to the proposed hazardous and mixed waste treatment and storage activities at the Lawrence Livermore National Laboratory located at 7000 East Avenue, Livermore.

The term "Main Site" refers to the Lawrence Livermore National Laboratory located at 7000 East Avenue, Livermore, which is owned by the Department of Energy and jointly operated with the University of California.

The term "Site 300" refers to the Lawrence Livermore National Laboratory located on Corral Hollow Road near Tracy, which is owned by the Department of Energy and jointly operated with the University of California.

The term "Initial Study" refers to the document entitled *Special Initial Study for Approval of a Hazardous Waste Facility Permit for Treatment and Storage of Hazardous Waste*, dated September 9, 1997.

The term "Negative Declaration" refers to the draft document entitled *Negative Declaration for Approval of a Hazardous Waste Facility Permit for Treatment and Storage of Hazardous Waste*, dated September 9, 1997.

The term "Health Risk Assessment" refers to the document entitled *Health Risk Assessment for Hazardous and Mixed Waste Management Units at Lawrence Livermore National Laboratory*, Volumes 1 and 2, dated February 1997.

The term "Permit" refers to the document entitled *Hazardous Waste Facility Permit* prepared by DTSC.

The term "Permit Application" refers to the documents entitled *Part A Application* and *Part B Application for Hazardous Waste Treatment and Storage Facilities, Livermore Site*, consisting of 11 volumes, dated October 1998.

REFERENCES

1. Transcript of public hearing in the matter of "The Draft Hazardous Waste Facility Permit and Proposed California Environmental Quality Act Negative Declaration for Lawrence Livermore National Laboratory," held on October 9, 1997, reported by Palmer Reporting Services; 82 pages and 8 exhibits.
 - a. Exhibit 1: Testimony from Ms. Marylia Kelley, Tri-Valley CAREs; 15 pages.
[See Comments 1, 16, 52, 53, 54, 55, 64, 65, 78, 80, 82, 83, 84, 86, 87, 88, 113]
 - b. Exhibit 2: Testimony from Ms. Sally Light, Tri-Valley CAREs; 10 pages.
[See Comments 18, 26, 32, 35, 38, 39, 41, 44, 62, 63, 89, 98, 114, 115]
 - c. Exhibit 3: Testimony from Mr. Vernon J. Brechin, 3 pages.
[See Comments 1, 27, 39, 43, 53, 66, 85, 89, 89, 90, 113]
 - d. Exhibit 4: Testimony from Ms. Phyllis Olin, 7 pages.
[See Comments 3, 19, 20, 26, 28, 29, 33, 35, 36, 41, 45, 46, 50, 76, 91, 111, 117]
 - e. Exhibit 5: Testimony from Mr. Edward B. Rippey, 3 pages.
[See Comments 1, 128, 129]
 - f. Exhibit 6: Testimony from Ms. Janice Kate Turner, 2 pages.
[See Comments 4, 56, 130]
 - g. Exhibit 7: Testimony from Mr. Marion Fulk, 21 pages.
[See Comments 92, 93, 94, 95, 96, 101, 103, 104, 105, 106, 107, 118, 119, 120, 121, 122, 123, 124, 126, 127, 131, 132, 133, 140]
 - h. Exhibit 8: Testimony from Ms. JoAnn Frisch, 5 pages.
[See Comments 5, 57, 58, 61, 67, 75, 102, 125, 134, 135, 136, 137, 138, 139]

[The following were written comments received during the public comment period.]

2. Letter from Ms. Jane Hutchins, October 20, 1997, 1 page. *[See Comment 6]*
3. Letter from Mr. Ricardo Bressanutti, Associate Planner, City of Livermore, October 22, 1997, 2 pages. *[See Comments 77, 79, 116]*
4. Postcard from Mr. Howard Gonsalves, County Lawyer, Contra Costa County, October 28, 1997. *[See Comment 21]*
5. Letter from Ms. Madge Strong, November 9, 1997, 1 page. *[See Comments 7, 69]*

6. Letter from Ms. Michelle Tsutsui, November 11, 1997, 1 page. *[See Comments 2, 68]*
7. Letter from Mrs. Betty Brown, Chair, East Bay Peace Action Executive Board, December 2, 1997, 1 page. *[See Comment 9]*
8. Letter from Mr. Michael J. Veiluva, Foundation Counsel, and Ms. Phyllis Olin, Staff Attorney, Western States Legal Foundation, 7 pages. *[See Comments 3, 12, 13, 22, 23, 24, 25, 30, 31, 34, 35, 36, 37, 40, 41, 42, 47, 48, 51, 100, 108, 112, 117]*
9. Letter from Mr. Bruce Dockter, December 3, 1997, 1 page. *[See Comment 10]*
10. Letter from Ms. Jolene Baker, December 6, 1997, 1 page. *[See Comments 8, 141]*
11. Letter from Ms. Stephanie Ericson, December 6, 1997, 1 page. *[See Comments 11, 70, 74, 97, 109]*
12. Letter from Ms. Marylia Kelley, Executive Director, and Ms. Sally Light, Nuclear Program Analyst, Tri-Valley CAREs, December 9, 1997, 13 pages. *[See Comments 15, 18, 32, 38, 39, 41, 49, 59, 60, 63, 71, 72, 73, 78, 80, 81, 82, 83, 86, 98, 113]*
13. Letter from Mr. Dale Nesbitt, December 8, 1997, 1 page. *[See Comment 14]*
14. Letter from Mr. Ronald Antrim, December 4, 1997, 1 page. *[See Comment 142]*
15. Public Comment Form from Ms. Joanne Freemire, September 23, 1997, 1 page. *[See Comments 17, 99, 110]*

WHETHER AN ENVIRONMENTAL IMPACT REPORT (EIR) SHOULD BE PREPARED

Comment 1

Tri-Valley CAREs strongly advocates that DTSC not issue the Laboratory the Permit at this time. Some of the areas of concern are, number one, that the adequate and correct level of environmental review has not yet occurred. An Environmental Impact Report (EIR) should be done of Livermore Lab's Main Site and Site 300 before issuing a permit.

This is true for a number of reasons, which include, number one, an EIR is much more comprehensive. For example, the health risk assessment that would be done in an EIR is much different than the one done here, it would be more holistic. There are requirements under the California Environmental Quality Act (CEQA) for cumulative impacts and other things of that nature to be considered that have not yet been considered by DTSC with respect to issuing this Permit.

And this is particularly relevant, since, as I said, the radioactive waste poses a hazard, as well as the hazardous and mixed waste that DTSC regulates.

And, of course, the wastes pose a hazard in concert with the leaks, spills, accidents and other releases from the programs in the facilities.

[1.a, 1.c, 1.e]

Response

DTSC disagrees that an EIR is necessary for this project. An EIR is not appropriate where an Initial Study has determined no significant impacts to the environment. Evaluation of the comments submitted have led to no areas requiring analysis of potential for significant impacts through an EIR process. However, further support for the DTSC Negative Declaration is being provided through this Response to Comments document. While DTSC does not necessarily agree with all of the attributes purported to an EIR document, these will not be rebutted since the merits of an EIR are moot if there are no significant impacts which require one to be prepared.

Comment 2

I am writing to urge the DTSC to not issue the Livermore Lab a permit at this time. Instead, an EIR should be done on LLNL's Main Site and Site 300 in order to provide a detailed and comprehensive analysis of potential hazards and preferable, environmentally-friendly alternatives before any final decision on the Lab's Permit Application is made by the state. Adding to the urgent need for an EIR,

the Lab's prior environmental review was inadequate, was done by the Dept. of Energy and not an independent agency, and is nearly six years old and hopelessly out-of-date.

[6]

Response

The scope of DTSC's project description under CEQA and hence its environmental analysis is the operation of specific hazardous waste storage and treatment facilities at the main site. It is not the operation of the overall LLNL complex or the Site 300 facility, which is under a separate permit for storage and treatment of hazardous waste related to its discrete operations mission. DTSC does not have the authority to reevaluate DOE's proposed action, which was analyzed in the 1992 EIS/EIR, to renew its contract with the University of California (UC) for the overall operation and management of the LLNL complex. It should, however, be noted that this 1992 EIS/EIR has been reevaluated by DOE since the comment period for the draft Permit began. Further, the fact that the 1992 EIS/EIR document and its update were prepared by DOE does not invalidate their content. CEQA and NEPA fully anticipate that public entities may prepare environmental analysis of their own project proposals, provided that they are reviewed by both the public and other affected agencies.

Comment 3

The 1992 EIS/EIR cannot be used in any sense as a substitute for an EIR. This data is old. Since 1992, the Decontamination and Waste Treatment Facility (DWTF) has been modified significantly, and there have been entirely new completed or planned LLNL projects such as the Atomic Vapor Laser Isotope Separation (AVLIS) and NIF.

[1.d, 8]

Response

The 1992 EIS/EIR was relied on by DTSC as a basis for its Initial Study, but is not being used as a substitute for an EIR. Additionally, DTSC has evaluated an addendum to the 1992 EIS/EIR which has been prepared for the renewal of the UC's contract for the continued operation and management of LLNL. The addendum was made available for public review and was not challenged. A Notice of Determination for this addendum was filed on September 17, 1997 and a copy of it was made available at the LLNL Eastgate Visitors Center for public review. DTSC will incorporate by reference to its final Permit and CEQA decision document any relevant data from the addendum. The addendum took into account all the mentioned changes in laboratory operations and how they may affect the impact of overall laboratory operations. The addendum found that "none of the conditions in (Title 14, CCR) Section 15162 calling for the preparation of a subsequent EIR have occurred". DTSC acknowledges that the addendum was not complete when its initial study was circulated for comment. However, DTSC was aware that the contract for the continued operation and management of LLNL was subject

to update and that LLNL did not anticipate major changes to its present or future operations or the environmental assessment for it. The addendum's content has been fully taken into account in DTSC's final permit decision. This and other sources of information have been used to validate and update all information from the 1992 EIR/EIR that was used for DTSC's analysis.

Also, as required by the DOE regulations, in January 1999, the U.S. DOE issued a draft supplement analysis of the 1992 EIS/EIR titled *Draft Supplement Analysis of the Lawrence Livermore National Laboratory (LLNL) and Sandia National Laboratories, Livermore (SNL-L) Site-wide Environmental Impact Statement (EIS)*. The DOE regulations require that site-wide EISs, such as the 1992 EIS/EIR, shall be evaluated at least every five years after issuance to determine whether the existing EIS remains adequate, or whether to prepare a new site-wide EIS, or supplement the existing EIS.

The supplement analysis evaluated a set of new and modified projects and proposals and other new information and concluded that no supplementation of the 1992 EIS/EIR is needed because either the projected impacts are within the bounds of the 1992 EIS/EIR, the impacts were anticipated by mitigation measures established in the 1992 EIS/EIR, or the incremental differences in impacts are not significant.

Comment 4

And I would ask for an environmental impact review before further contaminants are allowed to build up above ground and possibly leach down through and contaminate the groundwater that such major work has been done to clean up.

[1.f]

Response

DTSC disagrees that an EIR is necessary for this project. An EIR is not appropriate where an Initial Study has determined no significant impacts to the environment. It is speculative to assume that the management of hazardous waste in storage and treatment units will be a potential source of releases requiring site mitigation activities. None of the hazardous waste management operations of the facility, since it has been allowed to operate under interim status, have been identified as contamination sources under CERCLA investigation and cleanup activities at the site. The cleanup activities are in response to the contamination which resulted from historic laboratory materials releases and disposal. Such cleanup activities are symptomatic of older industrial plants and DOE facilities throughout the country and the practices that caused the releases pre-dated many of the current environmental laws. It would be inappropriate to link cleanup activities for such materials to the permit for hazardous waste management since they did not result from such activities. Site cleanup activities continue to progress for all materials releases at the site. DOE acknowledges its responsibility to remediate them.

Comment 5

Something is very wrong here. And I think that it calls for a complete environmental impact study, not just a whitewash of what's already been done.

[1.h]

Response

DTSC disagrees that an EIR is necessary for this project. An EIR is not appropriate where an Initial Study has determined no significant impacts to the environment.

Comment 6

In light of the unenviable history of the Lawrence Livermore National Laboratory's operations practices including accidents, violations of environmental laws, groundwater contamination and others, as revealed during the DTSC hearing on October 9, 1997, I emphatically agree with those proposing that an EIR be completed before the California DTSC decides on the permit. Already a Superfund site badly in need of clean up, LLNL should be required first to analyze the potential hazards and possible alternatives to the waste treatment and storage facility.

[2]

Response

It is speculative to assume that the management of hazardous waste in storage and treatment units will be a potential source of releases requiring site mitigation activities. None of the hazardous waste management operations of the facility, since it has been allowed to operate under interim status, have been identified as contamination sources under CERCLA investigation and cleanup activities at the site. The cleanup activities are in response to historic laboratory materials releases and disposal. Such cleanup activities are symptomatic of older industrial plants and DOE facilities throughout the country and the practices that caused the releases pre-dated many of the current environmental laws. Therefore, it would be inappropriate to link cleanup activities for such materials to the permit for hazardous waste management since they did not result from such activities. It would also not be environmentally sound to allow the laboratory to continue to operate in a less regulated manner (as what would occur without a permit) for several years just because site cleanup activities are in progress at other parts of the site. Site cleanup activities will continue at the site until such time that all contamination found no longer poses a threat to public health and the environment. LLNL acknowledges its responsibility to remediate them. As for the accidents and violations purported by the commenter, a more thorough discussion can be found in the responses to Comments 62 and 64.

Comment 7

A comprehensive, thorough, independent Environmental Impact Report should be required before this project is even considered.

[5]

Response

An EIR is not required for this site for the reasons stated in response to Comment 1 above. Both the Initial Study and Negative Declaration were prepared by DTSC. DTSC is independent of any affiliation with DOE.

Comment 8

I request that the state conduct a full environmental impact report before deciding whether to grant a permit to LLNL.

[10]

Response

An EIR is not required for the Project for the reasons stated in response to Comment 1 above.

Comment 9

This is to indicate our organization's concern regarding the state process for permitting storage and treatment of hazardous and mixed radioactive wastes at the Lawrence Livermore Laboratory. We join with those who call for requiring a full Environmental Impact Report before approving such a permit.

[7]

Response

An EIR is not required for the Project for the reasons stated in response to Comment 1 above.

Comment 10

I wanted to write to you to say a few words about Livermore Lab's application to store and treat hazardous and radioactive wastes. It would seem that a little common sense is in order. Now, these

are the people that thought it was a good idea to put all this dangerous material in big oil drums and dump it in the ocean not all that far away from the Golden Gate and the entrance to the San Francisco Harbor. These are also the people who have buried like waste on the grounds of the Lab itself in an unsafe and probably illegal way. In the recent construction activities at the lab, the construction crews just sort of cut right into it.

So, the Lab has proven that they didn't know how to handle this dangerous material in the past. They have not demonstrated that they NOW know how to handle this material safely. Wouldn't it make sense to do a full environmental impact study first. Let's find out what the real impact on the environment will be based on the Labs past and current ability to deal with this serious situation. I strongly urge you to conduct a full environmental impact report BEFORE the Lab is issued a permit.

[9]

Response

DTSC believes that its permit requirements are adequate to regulate the management of hazardous waste at the facility in a safe manner that protects human health and the environment. DTSC has also reviewed the safety analysis and the control measures designed into the treatment and storage units described in LLNL's Permit Application and have found them to meet or exceed regulatory requirements. The standards set forth in DTSC's Hazardous Waste Facility Permit, in conjunction with the Permit Application, would be effective in preventing as well as enforcing the correction of mismanagement of waste that have occurred in the past. In addition, DTSC believes that an EIR is not required for the Project for the reasons stated in response to Comment 1 above.

Comment 11

I believe that an Environmental Impact Report of LLNL operations (Main Site and Site 300) should be conducted before granting even a modified hazardous waste permit to this facility. Six years ago, a previous EIR was conducted by the Department of Energy. But we need an up-to-date and independent EIR.

[11]

Response

An EIR is not required for the Project for the reasons stated in response to Comment 1 above. See Comment 3 regarding the 1997 addendum to the 1992 EIS/EIR and its use in DTSC's permit decision. DTSC has validated the fact that all information used in its permit decision is up-to-date.

Comment 12

Western States Legal Foundation disputes the issuance of a RCRA Part B permit to LLNL based on the negative declaration, and requests that DTSC prepare a full EIR to more completely address the scope of the project, the risks to human health, and potential impacts to the environment. As more fully set forth below (see comments by reference [8]), the IS is inadequate to support the negative declaration under CEQA. Based on the record as a whole, substantial evidence in the record supports a fair argument that significant impacts may occur to the surrounding Livermore community. It further appears that DTSC has failed to gather the data necessary to make an informed decision that no substantial impacts can possibly occur as a consequence of this project.

[8]

Response

DTSC does not find that the project will have a significant effect on the Livermore community and therefore an Environmental Impact Report is not appropriate. DTSC has carefully considered the comments made during the public comment period and further analyzed these issues where warranted. Changes to both the draft Permit and the permit application have been made where appropriate. A list of these changes and the reasons why they were made is included in the response to comments and is part of the administrative record. DTSC has responded to the author's specific comments on potential sources of impacts and concerns with the content of the Initial Study under separate responses that follow (see included reference of comments by author). Based upon its analysis and the record as a whole, DTSC has found that there is no substantial evidence that the project will have a significant effect on the environment.

Comment 13

An Environmental Impact Report should be done at LLNL's Main Site and Site 300. For 45 years (since 1952), LLNL has generated a wide variety of nuclear and toxic wastes resulting from its work on nuclear weapons, fusion, lasers, etc. In 1987, LLNL's Main Site was placed on the National Priorities List as an extremely contaminated "Superfund" site. LLNL's Site 300 was added to the "Superfund" list in 1990. Since LLNL is already a "Superfund" site, rather than issuing a hazardous waste facility permit, which should allow LLNL to continue "business as usual," DTSC should carry out an EIR of LLNL's Main Site and Site 300, pursuant to CEQA. Further, a federal regulation promulgated by past DOE Secretary Watkins requires environmental review of DOE facilities, including LLNL, every 5 years (LLNL's last full EIS/EIR was in 1992, nearly 6 years ago, and therefore is out-of-date).

[12]

Response

See the response to Comment 3 above regarding the fact that the 1992 EIS/EIR was reviewed to determine its adequacy since the comment was received. See response to Comment 6 above regarding the fact that Superfund activities at the site are unrelated to regulated waste management activities and are not indicative of a risk posed by the proposed hazardous waste facility operations.

Comment 14

For many reasons, some of which are listed below, I feel that there must be a full EIR made of both the Main Site and site 300 of LLNL.

Basic human health and safety considerations should be enough to require a full EIR, after all that is exactly what the law was passed for.

The recent uncovering of very toxic waste, which were definitely disposed of in an illegal and unsafe manner, during evacuation for the NIF should be enough to cause a full EIR.

But the above is not the first time that LLNL has violated environmental laws, in fact the public record shows many violations, who knows how many more are not known outside of the Lab; this is a compelling reason for a full, complete and honest EIR.

I hope that Cal/EPA will simply do their job in an honest and complete manner.

[13]

Response

DTSC disagrees that an EIR is necessary for this project. An EIR is not required where an Initial Study has determined no significant impacts to public health and the environment. The discovery of hazardous waste during excavation activities and its cleanup is not considered part of the proposed Project and is therefore not subject to the analysis required under CEQA. Impacts related to cleanup activities are evaluated through the provisions stipulated in the Federal Facility Agreement under CERCLA and the Record of Decision which ensure that they are protective of public health. DTSC has also considered LLNL's past violations and they are further discussed in the responses to Comments 62, 64, 66, 72, and 73. Based on the corrective actions that LLNL has taken regarding the violations, DTSC finds that LLNL has demonstrated its ability to manage hazardous waste according to applicable state laws and regulations and has no reason to believe that historic waste management practices will be indicative of the regulated operation of permitted storage and treatment units.

Comment 15

Tri-Valley CAREs requests that DTSC not issue LLNL a hazardous waste facility permit at this time. For all the reasons discussed above (see comments by reference [12]), we ask that DTSC require a thorough environmental investigation (i.e., an EIR, as detailed above) of both LLNL's Main Site and Site 300 to determine whether, in light of LLNL's 'Superfund' site status and in view of LLNL's lengthy history of hazardous waste accidents, spills, releases and violations, a hazardous waste facility permit should be issued.

[12]

Response

DTSC has conducted a thorough analysis of the environmental issues of this project. DTSC has carefully considered the comments made during the public comment period and further analyzed these issues where warranted. Changes to both the Permit and the permit application have been made where appropriate. A list of these changes and the reasons why they were made is included in the response to comments and is part of the administrative record. DTSC has responded to the author's specific comments on potential sources of impacts and concerns with the content of the Initial Study under separate responses that follow (see included reference of comments by author). Based upon its analysis and the record as a whole, DTSC has found that there is no substantial evidence that the project will have a significant effect on the environment.

DTSC has analyzed past violations and accidents as a possible source of environmental impacts from the units to be permitted. As described in other specific responses to specific comments by the author, actions in the past that resulted in site contamination are now being remediated and were not related to any of the proposed units in the permit. The Department has concluded that the history of LLNL operations should not serve as a predictor of future permitted operations. The permitted units will be under different regulatory scrutiny than some past operations and much of the treatment operation has been redesigned and will be housed in a new, more modern facility. Additionally DTSC, under separate jurisdiction, will be overseeing the removal of past site contamination from unpermitted operations and other non-waste management sources.

The limits of DTSC's review of the proposed permit and its environmental impacts are tied to specific storage and treatment operations at LLNL main site, not to the research activities at the LLNL main site and the Site 300 complex. The permitted units at Site 300 are controlled by a separate, existing DTSC permit. DTSC has however assessed the cumulative impacts of hazardous waste facilities permit operations with these other laboratory activities and concluded that they are not significant as discussed further in response to comment 41.

Comment 16

Instead, DTSC should carry out an EIR under CEQA.

Also this would be complementary to, in terms of the timing that we're in right now, to a regulation, a federal regulation, promulgated by Secretary Watkins when he was Secretary of Energy, saying that the Federal Environmental Review for the DOE facilities needed to be kept current and should be updated every five years. And the last time the Lab had an EIS was almost six years ago. So it seems to me that this is time for a comprehensive environmental review under CEQA. And if the Lab administratively wanted to choose to do a CEQA/NEPA (National Environmental Policy Act of 1969) review our group would certainly consider that to be appropriate as well.

[1.a]

Response

An EIR is not required for the Project for the reasons stated in response to Comment 1 above. Regarding the update of the LLNL 1992 EIS/EIR, as noted above, a new CEQA analysis by DOE has been prepared that indicated that "none of the conditions for a supplemental CEQA document calling for the preparation of a subsequent EIR have occurred". Therefore, an addendum was prepared to the previous document. A Notice of Determination for this addendum was filed on September 17, 1997, and a copy of it made available in the LLNL Visitors Center for public review. DTSC has considered this document in its permit decision.

DOE also evaluated the 1992 EIS/EIR to determine whether the existing EIS remains adequate, or whether to prepare a new site-wide EIS, or supplement the existing EIS. The supplement analysis evaluated a set of new and modified projects and proposals and other new information and concluded that no supplementation of the 1992 EIS/EIR is needed because either the projected impacts are within the bounds of the 1992 EIS/EIR, the impacts were anticipated by mitigation measures established in the 1992 EIS/EIR, or the incremental differences in impacts are not significant.

Comment 17

An EIR needs to be done. A permit based on a Negative Declaration allows business as usual meaning continuous spills and accidents which threaten employees and local residents.

[15]

Response

An EIR is not required for the Project for the reasons stated in response to Comment 1 above. DTSC has specifically analyzed spills/releases, violations and accidents which have occurred historically in its

responses to Comments 62 and 64. There is no evidence that the Permit will result in any additional potential for waste management accidents or releases. Numerous safety factors and control measures are included in this permit to control, contain and limit the exposure from an accidental release.

INITIAL STUDY FINDINGS AND NEGATIVE DECLARATION

Comment 18

The Draft Negative Declaration is Ambiguous. Despite its title of "Draft Negative Declaration," DTSC's Neg Dec contains language that makes it unclear whether DTSC is drafting a straightforward Neg Dec (i.e., without required mitigative measures) or a Mitigated Neg Dec (i.e., with required mitigative measures). Further, only small projects normally receive a Neg Dec without mitigated measures, while LLNL is a major nuclear facility producing a wide range of hazardous and mixed waste (as well as radioactive wastes). Under the circumstances, it's reasonable that the DTSC, even if it believes there are no risks to health, safety & environment (which is a challengeable conclusion), explore some sort of mitigation measures such as waste reduction or pollution prevention.

[1.b, 12]

Response

DTSC will clarify the language under the heading "Mitigation Measures" of the Negative Declaration (Neg. Dec.) to indicate that it is not a mitigated Neg. Dec. No mitigation measures were required because DTSC identified no significant impacts that needed to be lessened to a less than significant level after an analysis of all the information contained in the Permit Application had been made and all conditions in the Permit had been written.

DTSC recognizes that LLNL is a major and complex facility operated by the U.S. Department of Energy serving as a national resource of scientific, technical, and engineering capability with a special focus on national security. However, projects subject to CEQA are not evaluated based on the size or type of the facility. As mentioned above, the analysis conducted in the Initial Study is based on the details of the proposed Project as described in LLNL's Permit Application and no impacts were found that required mitigation measures.

LLNL has been conducting formalized pollution prevention activities since 1990. As a result of LLNL's proactive Pollution Prevention Program, the trend since 1990 has been a significant reduction in waste generation. LLNL's Pollution Prevention Group was established to investigate and identify opportunities to reduce pollution, provide technical guidance on pollution prevention projects, and select and design waste-reduction technologies and equipment that are also cost and resource effective.

Comment 19

The absence of impacts is entirely dependent on the efficacy of mitigation measures. The use of a Negative Declaration under these circumstances is not appropriate and misleading.

[1.d]

Response

As explained in response to Comment 18, the analysis conducted in the Initial Study is based on the details of the proposed project as described in LLNL's Permit Application. No impacts were found to be significant that would require mitigation measures to avoid or lessen impacts to a level of insignificance. Therefore, the use of a Negative Declaration in this action is appropriate.

Comment 20

Questions that have to be answered are what agencies have been consulted in the preparation of the Initial Study? Were there comments? What were they?

[1.d]

Response

During the preparation of the Initial Study, the City of Livermore Planning Agency and the Alameda County Planning Department were consulted for information. During the public comment period, copies of the Initial Study and proposed Negative Declaration were sent to the California Department of Fish and Game, the Department of Water Resources, the Department of Transportation (CalTrans), State Lands Commission, the Regional Water Quality Control Board, the California Waste Management Board, the Air Resources Board, the Health & Welfare Agency, the Bay Area Air Quality Management District, the City of Livermore Planning Division, the Alameda County Community Development Agency, and the City of Livermore Water Reclamation Plant.

At the end of the public comment period, one agency, the City of Livermore, submitted comments on the draft Permit and the proposed ND. The City of Livermore's comments are identified as Comments 77, 79, and 116 of this document. No other comments were received from the other agencies identified above.

Comment 21

I ask you not to issue a permit to the Lawrence Livermore National Laboratory at this time. A detailed comprehensive analysis is needed on the potential hazards that exist before the permit is issued.

[4]

Response

DTSC has conducted detailed analyses of the potential hazards associated with the Hazardous Waste Management (HWM) facilities to be permitted. Before DTSC can grant a Hazardous Waste Facility Permit, the owner and/or operator of the facility must show that it can conduct hazardous waste operations in a safe manner. This is accomplished by submittal of a Part A and B Application which DTSC reviews in detail for compliance with hazardous waste regulations. For the proposed Project, LLNL has submitted an 11-Volume Application containing descriptions of wastestreams, treatment and storage units, management practices and inspection procedures, safety design features, training programs, and emergency procedures all of which demonstrate how they will safely conduct hazardous waste operations. DTSC has reviewed the entire Permit Application against the requirements found in Title 22 of the California Code of Regulations and has found the application to be technically sound and complete. Furthermore, a Health Risk Assessment (HRA) was prepared which evaluated the potential cancer risk and the non-cancer health effects associated with the Project. The HRA concluded that both the cancer and non-cancer risks were at acceptable levels. DTSC also analyzed the impacts to the environment in accordance with CEQA. DTSC's CEQA analysis showed that the potential impacts to the environment are insignificant. It is on these detailed comprehensive analyses that DTSC based its decision to issue LLNL a Hazardous Waste Facility Permit.

Comment 22

At the October 9 public hearing, DTSC emphasized that the proposed Negative Declaration is not a "mitigated negative declaration" under Publ. Res. C. sec. 21064.5 but is intended to stand on its own as an "unmitigated" negative declaration. Yet the Negative Declaration is replete with assumptions that LLNL will fulfill all regulatory requirements and that the various mitigation and safety measures adopted at the site will prevent the inadvertent release of hazardous or radioactive materials into the environment. As reflected in the notices and other materials referenced by Tri-Valley CARES in its comment, the site has frequently released measurable quantities of these materials into the environment. We further note that LLNL has remained a NPL Superfund site since 1987.

The IS contains no analysis of the pre-mitigated impacts of the project, or of the proposed mitigation measures themselves except in the most general terms. The sum of the entire potential public health impacts to LLNL's continued operation as a hazardous and mixed waste treatment site is found at pages 55 through 61 of the IS. Engineering controls are briefly enumerated, along with various

assumptions regarding the total (but not existing) waste volumes to be permitted under the Part B permit. The paucity of information on this subject is fatal to the Negative Declaration.

If the project relies on extensive mitigation measures, these should be clearly explained in the IS and the Negative Declaration should have been characterized as a "Mitigated Negative Declaration" under Sec. 21064.5 to avoid misleading the public and decision makers as to the nature of the document. Moreover, there is insufficient material in the IS to provide assurances that the mitigation measures enumerated in the IS will be fully implemented and adopted prior to permit issuance. Pub. Res. C. sec. 21081.6.

[8]

Response

As stated in response to Comment 18, DTSC will clarify the language under the heading "Mitigation Measures" of the Negative Declaration (Neg. Dec.) to indicate that it is not a mitigated Neg. Dec. No mitigation measures were required because DTSC identified no significant impacts that needed to be lessened to a less than significant level after an analysis of all the information contained in the Permit Application had been made and all conditions in the Permit had been written.

LLNL HWM Facility design features, engineering controls, administrative procedures and proposed operational controls described in the Part B Permit Application include those necessary to meet design, administrative and operational criteria independently required by DOE. The DOE criteria are developed through a formal hazard analysis report process prescribed by DOE orders and standards. The June 6, 1996, Final Environmental Assessment Under DOE NEPA Regulations for the DWTF, Item 6 on the Initial Study's Reference List, summarizes the results of preliminary hazard analyses for the proposed DWTF and B280 HWM facilities. The DWTF analysis relies, in part, on a hazard analysis of the existing LLNL HWM facilities. These hazard analyses demonstrate that the proposed and existing LLNL HWM facilities can be designed and operated to meet the DOE criteria. Subsequent hazard analyses validate the results of these earlier analyses. DTSC has reviewed these reports and concluded that LLNL's operating in conformance with the DOE criteria will ensure the risk of upset is insignificant, even when the items discussed in the Initial Study which could reduce the consequences of a release even further do not work as planned. Such items include the LLNL contingency plan, suppression systems and onsite fire department response. Consequently, when these items do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant. For a further discussion of the DOE criteria, hazard analyses and permit controls, see the Response to Comment 35.

With regard to prior releases to the environment at LLNL and to LLNL's status as a Superfund site, please see the responses to Comments 62, 63 and 64.

Comment 23

Remarkably, no reference is made in the IS whatsoever to the programmatic Final Waste Management EIS prepared by the U.S. Department of Energy in May 1997. That document included alternatives for DOE's continued waste management operations including regionalization of certain treatment sites including LLNL. The IS does not refer to any potential for significant treatment of offsite low levels of hazardous wastes.

[8]

Response

As a planning document, the Final Waste Management Programmatic Environmental Impact Statement (WMPEIS) provides information on the impacts of various siting alternatives which the DOE will use to decide at which sites to locate additional treatment, storage, and disposal capacity for its inventory of radioactive, hazardous and mixed wastes throughout the DOE complex. Since no decisions have been made as to which of the preferred alternatives will be chosen, it is not appropriate to include an analysis of any alternatives in the IS because it is not reasonably foreseeable and, therefore, too speculative for consideration. It is unknown to DTSC as to when DOE will pursue any alternative presented in the WMPEIS. However, the siting, construction and operations of any new facility at a selected site will not be decided until completion of a separate DOE site-wide or project-specific environmental impact review.

For the commenter's information, the WMPEIS indicated no changes are proposed by the preferred alternative for the management of hazardous waste at LLNL. This means that hazardous waste would continue to be treated onsite and sent offsite for disposal as is the current practice. In addition, LLNL was mentioned in several of the alternatives analyzed for the management of LLMW. Two of these alternatives (the Decentralized and Regionalized 1 Alternatives) would include disposal of low-level mixed waste at LLNL Site 300. However, the preferred alternative described in the WMPEIS limits low-level mixed waste activities at LLNL to onsite treatment and offsite disposal at one of the other DOE facilities. This would be consistent with the current LLNL strategy for management of low-level mixed waste. In addition, DTSC's Hazardous Waste Facility Permit will prohibit LLNL Main Site from receiving waste from offsite sources except from Site 300. LLNL would be required to apply for a permit modification should DOE decide to consider using the facility for management of offsite waste.

Comment 24

The IS does not adequately identify those local agencies who submitted comments or otherwise had input in the preparation of the IS. In particular, notice and opportunity to comment should be documented for such entities as the Livermore sanitary districts or waste treatment authorities, the Alameda County Environmental Health Department, and the Regional Water Quality Control Board.

[8]

Response

During the preparation of the Initial Study, the City of Livermore Planning Agency and the Alameda County Planning Department were consulted for information. During the public comment period, copies of the Initial Study and proposed Negative Declaration were sent to the California Department of Fish and Game, the Department of Water Resources, the Department of Transportation (CalTrans), State Lands Commission, the Regional Water Quality Control Board, the California Waste Management Board, the Air Resources Board, the Health & Welfare Agency, the Bay Area Air Quality Management District, the City of Livermore Planning Division, the Alameda County Community Development Agency, and the City of Livermore Water Reclamation Plant.

At the end of the public comment period, one agency, the City of Livermore, submitted comments on the draft Permit and the proposed ND. The City of Livermore's comments are identified as Comments 77, 79, and 116 of this document. No other comments were received from the other agencies identified above.

Comment 25

DTSC's proposed finding of no significant impact relies entirely upon a set of complex engineering controls and human infallibility to protect the public and environment from the release of dangerous and long-lived materials. The IS admits to no error in this analysis, and defers entirely to LLNL assurances of full regulatory compliance, to the extent that the public is not even given the most cursory information regarding the potential health hazard of the treated and stored materials. The fact that these activities will take place in a thriving suburb in excess of 50,000 people, and in a larger urban area of 6 million, warrants strict scrutiny. We can only conclude that after fifteen years of consideration, DTSC has abdicated its statutory mandate to LLNL with respect to this project.

[8]

Response

LLNL HWM Facility design features, engineering controls, administrative procedures and proposed operational controls described in the Part B Permit Application include those necessary to meet design, administrative and operational criteria independently required by DOE. The DOE criteria are developed through a formal hazard analysis report process prescribed by DOE orders and standards. The June 6, 1996, Final Environmental Assessment Under DOE NEPA Regulations for the DWTF, Item 6 on the Initial Study's Reference List, summarizes the results of preliminary hazard analyses for the proposed DWTF and B280 HWM facilities. The DWTF analysis relies, in part, on a hazard analysis of the existing LLNL HWM facilities. These hazard analyses demonstrate that the proposed and existing LLNL HWM facilities can be designed and operated to meet the DOE criteria. Subsequent hazard analyses validate the results of these earlier analyses. DTSC has reviewed these reports and concluded that LLNL's operating in conformance with the DOE criteria will ensure the risk

of upset is insignificant, even when the-items discussed in the Initial Study which could reduce the consequences of a release even further do not work as planned. Such items include the LLNL contingency plan, suppression systems and onsite fire department response. Consequently, when these items do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant. For a further discussion of the DOE criteria, hazard analyses and permit controls, see the Response to Comment 35.

IMPACTS

Comment 26

Another area that I feel is deficient in the Initial Study is having to do with land use and future onsite land use. The land use section on page 33 [of the Initial Study] should be mapped and expanded to at least a five-mile radius around the Lab. I believe that would be a desirable thing under CEQA.

[1.b, 1.d]

Response

DOE facilities are exempt from local plans, policies, and zoning regulations. However, it is DOE policy to cooperate with local governmental planning agencies, in this case the City of Livermore and County of Alameda, whenever possible. The Project, consisting of existing areas in addition to the construction of new buildings associated with the DWTF, is compatible with existing and approved future land uses within one mile of the site. DTSC also evaluated health impacts to the maximally exposed individual living approximately one-half mile from LLNL and found that both cancer and non-cancer risks were below levels of concern. Since no impacts to land use and public health were found within one mile of the facility, DTSC found no reason to evaluate any impacts beyond the one-mile radius. In addition, no sources beyond a one-mile radius were identified that could pose cumulative impacts when considered in relation with the Project. Therefore, DTSC believes that expanding its CEQA analysis vicinity to a five-mile radius is not warranted.

Comment 27

I've been quite interested in this future land use and how things are being determined by manmade decisions about how the land will be used in the future. There's a lot of arrogance seems to be based on it. A lot of certainty about what will happen to properties and lands.

[1.c]

Response

DTSC, in its evaluation of the impacts of the Project considered whether or not the location of the proposed Project would be consistent with existing zoning, would impact residentially zoned property or be located in proximity to incompatible land uses. The Initial Study stated that although DOE facilities are exempt from local plans, policies, and zoning regulations, it is DOE policy to cooperate with local governmental planning agencies, in this case the City of Livermore and County of Alameda, whenever possible. LLNL's perimeters consist of rural areas dominated by agricultural use and open space. Property to the south includes agricultural areas, low-density residential areas, and Sandia National Laboratory which is also surrounded by DOE-owned land. To the west, a mixed density,

single-family residential subdivision begins and extends south and west. A 500-ft-wide buffer zone exists to the north and west perimeter of the site.

The proposed project, consisting of existing areas in addition to the construction of new buildings associated with the DWTF, is compatible with existing and approved future land uses surrounding the site. Because no new types of land uses would be introduced and the buffer and perimeter areas would not change, no changes in the site's compatibility with existing and approved future land uses would result from the proposed Project. For any new offsite land uses, the City of Livermore will need to consider the compatibility with continued LLNL operations.

In addition, the Health Risk Assessment prepared to analyze the risk to on and offsite populations for operating the DWTF examined the composition of surrounding populations and estimated the impacts to these populations as well as the maximally exposed individual. The results of the HRA are presented in Section 14 of the Initial Study and have concluded that operation of the DWTF would not result in adverse impacts to offsite populations. Also, please see responses to Comments 28 and 35.

Comment 28

As far as the environmental setting, in the Initial Study, this is generally limited to the specific Livermore Lab site.

The Livermore population is about 50,000. The Bay Area surrounding that is in excess of 5,000,000, more like 6,000,000, within a 50-mile radius. And one would not even suspect it if the Lab were taken and kind of shot off into space and we talked about that little star out in space.

The land use includes intensive residential area to the west. The site is urban and the population density has to be considered. I mean, if you look just around the Lab itself, right now, there are more and more housing developments going up all the time.

[1.d]

Response

Please see response to Comment 27 which states that the Project, consisting of existing areas in addition to the construction of new buildings associated with the DWTF, is compatible with existing and approved future land uses surrounding the site. In addition, the results of the HRA showed that the operation of the DWTF would not result in adverse impacts to offsite populations.

Comment 29

What is the population density? What about new residential construction? Under the Livermore General Plan, what is the projected new construction adjacent to the Lab?

[1.d]

Response

The City of Livermore has a population of 65,000 residents with a total housing of 23,000 units (IS, p. 68). New residential construction in the vicinity of LLNL includes a housing development by Signature Properties along Vasco Road between Daphne Drive and Mesquite Way. Since preparation of the Initial Study, the Phase 3 development known as Coventry Homes has constructed 95 out of its planned 130 single family homes. This is part of a larger development known as Stratford Park which is permitted to build a total of 453 single family dwellings. Just south of Stratford Park on Vasco Road is a McBail Homes development called Ravenswood. Construction began in January 1999 on 26 single family homes. Off East Avenue just west of Vasco Road will be a new development by Signature Homes called Dunsmuir. The first phase, to open in August 1999, will consist of approximately 122 single family homes.

As stated in section 17, Cumulative Impacts, page 63 and 64 of the Initial Study, other proposed developments in the vicinity of LLNL include the following:

- ! Industrial Park - A site which is zoned industrial, located off Greenville Road, approximately 1 mile north of LLNL, is being developed for industrial use. Construction started in 1997. Included in this industrial park is a 600,000 ft² warehouse facility which will be occupied by Circuit City. The City of Livermore Planning Department says that the construction schedule cannot be predicted. Additional buildings consisting of offices, warehouses, etc., will also be built.
- ! Garre Winery - This is a proposed 2.5 acre development consisting of buildings for wine storage, wine tasting, and a restaurant. It will be located on the northwest corner of Greenville Road and Tesla Road. Construction of the winery portion began in 1997 and its cafe is now open. The Alameda County Planning Department has changed the zoning for the 2.5 acre parcel to allow construction of the cafe. The entire development is expected to be completed by the year 2002.
- ! Mobile Home - This project involves the addition of a mobile home at an existing 17.3 acre property located on 4224 Greenville Road (east side corner southeast of Tesla Road). The existing property consists of barns, an equestrian center, and other structures. The mobile home will be used as a temporary residence for the caretaker. The Alameda County Planning Department is processing a Conditional Use Permit (CUP) to allow for the addition of the mobile home because the zoning for that parcel only allowed for one residential dwelling.

Addition of the mobile home will require installation of utility systems for electricity, water, and sewer. Since building permits still need to be obtained, the date of installation is unknown.

The types of land uses allowed within the vicinity of LLNL are under the jurisdiction of both the City of Livermore and the County of Alameda. Any new construction approved in the area, such as those listed above, are based on its consistency with the general plans of both local planning agencies. These plans are obliged to consider existing facilities such as the LLNL complex.

Comment 30

The description of the human setting of the project in the IS is similarly restrictive. The IS confines itself to a general description of the Livermore area. The affected Bay Area population used for purposes of the recent May 1997 Programmatic EIS for the Department of Energy's nationwide waste management operations was 6,324,234 based on 1990 census data. WM PEIS, vol. 1, 4-55.

[8]

Response

The differences in these environmental settings discussions is appropriate given that the IS only considered onsite waste management at LLNL Main Site for storage and treatment whereas the WMPEIS evaluates accepting offsite waste and regional disposal facility alternatives. Also, please see response to Comment 28.

Comment 31

As to the immediate Livermore site, the description of local land uses is woefully inadequate. High density apartments are located within one mile of the project site, and new single family residences are being built directly across the street from LLNL's western entrance. The IS takes none of this into account, and makes no allowances for the fact that large scale hazardous waste operations will be conducted in an active, growing suburban area.

[8]

Response

The IS considered both existing and future land use in its analysis of potential impacts. The "Land Use" and "Cumulative Impacts" sections of the IS stated that land uses near the LLNL site varied from densely populated residential to heavy industrial and manufacturing areas. Specifically, page 34, Section 6, Land Use, of the IS states,

LLNL's perimeters consists of rural areas dominated by agricultural use and open space. Property to the south includes agricultural areas, low-density residential areas..... To the west, a mixed density, single-family residential subdivision begins and extends south and west. Property to the east is agricultural land and low-density residential development.

and page 63 of section 17, Cumulative Impacts, of the IS states,

Proposed developments in the vicinity of LLNL Livermore site include the following: Housing development - Signature Properties is continuing development of property as residential housing along Vasco Road between Daphne Drive and Mesquite Way. The development is currently in Phase 3, known as Coventry Homes. Approximately half of the permitted total of 453 single family dwellings have been built. The building is in a slowdown mode due to economic factors.

Considering the current and future land uses as described above, DTSC found that less than significant impacts would be posed to the existing community and its future growth by LLNL's proposed hazardous waste operations. This evaluation took into account potential human health effects from both normal operations and upset conditions at the facility.

Comment 32

Seismic Issues. The IS states that all buildings at LLNL either meet or exceed the 1994 Uniform Building Code seismic requirements for concrete and steel structures implying that the buildings could withstand seismic activity. Yet, LLNL's Permit Application has a letter to LLNL from Geomatrix Consultants that concludes "...evidence --- could provide documentation for compliance with the seismic location standard. However, it is recognized that after reviewing the same evidence other reasonable people may disagree with these conclusions." That is, such compliance is disputable and uncertain by reasonable seismic consulting industry standards. Another report, from Public Geotechnical Engineering, states that satisfactory seismic standards would include compliance with 1) high foundation capacities, 2) replacement of silty-clay soils with well-compacted soil fill, and 3) reviews every three years. This may indicate a need for constant scrutiny of a chronic problem. Additionally, there is no real analysis of earthquake risk based on 1) the crack opened in LLNL's southeast corner (near where waste is stored), that may have been caused by a 1980 quake, or on 2) other past seismic events (the area is very active seismically).

[1.b, 12]

Response

The letter from Geomatrix Consultants (Appendix II-C of the Permit Application) dated March 25, 1985, was regarding the seismic evaluations at the southeast corner of the Laboratory. That site had earlier been considered for construction of the DWTF. However, after the 1980 earthquake and the finding of surface cracks on the asphalt surface, the current location in the northeast corner of the Laboratory was chosen as the site for the DWTF. The seismic studies for the current location of the DWTF are also located in Appendix II-C of the Permit Application.

Regarding the part of the comment about compliance with high foundation capacities and replacement of silty-clay soils with well-compacted soil fill, there is no report from Public Geotechnical Engineering in the Permit Application. However, DTSC believes that the commenter is referring to the report from Roger/Pacific Geological and Geotechnical Engineering contained in Appendix II-C. That report has been amended through a peer review process by a report prepared by Kleinfelder, Inc. which recommended the following ground preparation work for the project:

- (1) High foundation capacities: The foundations are designed, and will be constructed, for 4,000 psf (dead plus live load).
- (2) Replacement of silty clay soils with well-compacted soil fill:
 - a. All footings will be supported on a minimum of one-foot engineered fill, and all slab-on-grades will be supported on a minimum of 2 feet of engineered fill.
 - b. After the excavation for footings, the subgrade will be compacted to 95% over optimum moisture content.
 - c. Uncompactible soils (such as silty clay or clayed silt) under the foundation will be removed, replaced with engineered fill, and compacted to 95% of the maximum dry density per American Society for Testing and Material (ASTM) D1557 standard.

These recommendations are included in the Permit Application and are required to be followed by LLNL upon construction of the DWTF. An independent soil engineer will oversee the subgrade conditions as work progresses.

The Roger/Pacific Geological and Geotechnical Engineering Report, dated July 9, 1996, page 15, Closure section states, "...this report should not be relied upon after an elapsed period of three years without a review by Rogers/Pacific or verification of validity." This was a disclaimer placed in the report to account for any new information that may invalidate any conclusions or recommendations that were made during preparation of the report three years ago. It does not imply that there is a chronic problem that needs reevaluation every three years. The report is valid from July 9, 1996 to July 9, 1999. The permit decision will be made within this time frame. Currently, DTSC is not aware of any new events warranting reevaluation of the report.

Regarding the crack in the southeast corner of the Main Site, DTSC evaluated a feature which approaches within 750 feet of areas 514, 612, and 625 and is over 3,000 feet from DWTF and Area 280. The evaluation was done during DTSC's review of the Permit Application and prior to the preparation of the Initial Study. This feature is a surface crack which appeared after the January, 1980,

events that occurred on the Greenville fault located over one mile east of LLNL. This feature was further investigated by trenching studies in March, 1985, but did not conclusively demonstrate that the feature is a fault. The Permit Application indicated that if a projection of the crack is made, the projection would be greater than 200 feet from the nearest waste management unit. The seismic standards set forth in the California Code of Regulations, Title 22, Section 66270.14(11) state that the applicant must demonstrate that no faults pass within 200 feet of the portions of the facility where treatment, storage or disposal of hazardous waste will be conducted. Since LLNL has demonstrated that none of its hazardous waste management units are located within 200 feet of a potential fault, the seismic standard set by regulations has been met. In addition, an evaluation was conducted on the design of Building 280, Buildings 612, 612-2, 612-4, 614 and 625 within the Area 612 Facility and Buildings 693 and 695 within the DWTF and was found to either meet or exceed the 1994 Uniform Building Code (UBC) seismic requirements which is the current standard for concrete and steel structures at the time of DTSC's review. Based on this evidence, DTSC made a finding in the IS that the seismic risk posed by the crack or the Greenville Fault would be less than significant.

Comment 33

The discussion of seismic hazard is woefully inadequate. I recall that a serious earthquake was experienced in 1980 on the nearby Greenville Fault. That isn't even mentioned.

[1.d]

Response

Preceding the preparation of the Initial Study, DTSC evaluated information found in Appendix II-C of the Permit Application regarding the surface crack observed in the asphalt surface after the 1980 Greenville Fault. Please see response to Comment 32 which states that this feature was further investigated by trenching studies in March, 1985, but did not conclusively demonstrate that the feature is a fault. In addition, DTSC evaluated the design of Building 280, Buildings 612, 612-2, 612-4, 614 and 625 within the Area 612 Facility and Buildings 693 and 695 within the DWTF and found them to either meet or exceed the 1994 Uniform Building Code (UBC) seismic requirements which was the standard for concrete and steel structures at the time of DTSC's review. Based on this evidence, DTSC made a finding in the IS that the seismic risk posed by the Greenville Fault would be less than significant.

Comment 34

The IS contains a crabbed and artificially circumscribed description of the natural and human environment. The sole reference to historic seismic concerns appear on pages 17 and 18 with the bare statement that the project site is "more than 200 feet" from an active fault. We are unaware of legal standard that limits consideration within an EIR or IS to faults within a 200 foot zone. More

importantly, the IS fails to disclose that LLNL suffered property damage as a consequence of a major episode on the Greenville Fault in 1980 which is one mile from the project site. The IS does not disclose any serious effort by DTSC to evaluate the potential for the release of hazardous or radioactive materials into the environment as a consequence of further activity along this fault.

[8]

Response

The commenter is correct in that there is no requirement within an EIR or IS that seismic considerations be limited to faults within a 200 foot zone. Consideration of faults within 200 feet of a treatment, storage, or disposal unit is required under the California Code of Regulations, Title 22, Section 66270.14(a)(11)(A)(2). This section states that information shall be provided in the Permit Application showing that “if faults (to include lineations) which have had displacement in Holocene time are present within 3,000 feet of a facility, no faults pass within 200 feet of the portions of the facility where treatment, storage or disposal of hazardous waste will be conducted, based on data from a comprehensive geologic analysis of the site.” LLNL met this requirement by providing information in their Permit Application showing that the north branch of the Las Positas Fault, the closest fault to HWM facilities, is 600 feet south of the Area 612 Facility, 2,700 feet south of the DWTF, and 6,000 feet southeast of the Building 280 (Part B, Vol. 1, Part II, p. 10).

The structural and nonstructural damage to the LLNL Main Site caused by the 1980 Greenville Earthquake has been documented in the 1992 EIS/EIR. Following this event, LLNL required a more stringent seismic design policy for any new structure or modification to an existing structure (EIS, 1992, p. I-54). Seismic Reports for Buildings 695, 693, 612, and 625 show that all buildings either meet or exceed the 1994 UBC seismic requirements which was the current standard for concrete and steel structures at the time the Permit Application was reviewed.

The impacts of a potential release of hazardous material caused by an accident was analyzed under Section 8, Risk of Upset, of the IS and in the response to Comment 35.

Comment 35

The risk of upset, on page 36 [of the Initial Study], is not a risk assessment at all, but merely a recitation, in general terms, of mitigation measures and promises that all regulatory controls will be obeyed. Note that only a large quantity of waste is mentioned. No numbers are given.

What are the impacts of a significant release of the materials to be treated or stored under the Part B? There's zero information. Even the 1987 EIR, which was inadequate, had some mention of it. This has nothing.

The itemization of potential accidents on page 41 is followed by a single sentence that "engineering controls will reduce the severity of any potential accident."

The discussion of the contingency plan admits of the possibility of a potential impact from an accident, including threat to life, but instead describes mitigation measures, so that's entirely skirted.

The IS contains no assessment of risk from transportation accidents associated with radioactive or hazardous waste, only a promise of full compliance with applicable safety regulations. The IS does not disclose the existence of any traffic study or analysis of potential impacts from a highway accident involving hazardous transport (compare IS at p. 44) or shipments of radioactive wastes (p. 49).

And the same problem with radioactive wastes. There's no discussion regarding Sandia-generated wastes. What are the cumulative impacts of those?

[1.b, 1.d, 8]

Response

Background

LLNL HWM Facility design features, engineering controls, administrative procedures and proposed operational controls described in the Part B Permit Application include those necessary to meet design, administrative and operational criteria independently required by DOE. The DOE criteria are developed through a formal hazard analysis report process prescribed by DOE orders and standards. DTSC has reviewed this process and concluded that LLNL's operating in conformance with the DOE criteria will ensure the risk of upset is insignificant, even when the-items discussed in the Initial Study which could reduce the consequences of a release even further do not work as planned. Such items include the LLNL contingency plan, suppression systems and onsite fire department response. Consequently, when these items do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant.

The hazard analysis reports required by DOE are based on the specific characteristics of the facilities to be permitted. For example, the analyses systematically identify and document the specific energy sources for potential release mechanisms at the facilities and the specific radiological and chemical inventories at risk during postulated releases. The analyses then screen the postulated accident scenarios, the potential chemical and radiological release mechanisms, and the types and amounts of chemicals and radionuclides at risk so as to identify the "Bounding Accidents." Bounding Accidents are the postulated, reasonably foreseeable accidents which could cause the releases which could be the most harmful to human health. The results of the analyses are used to determine what, if any, engineering or administrative controls are required to maintain facility chemical and radiological inventories and facility operating conditions within the limits necessary to ensure that no credible release can have consequences exceeding acceptable emergency planning guidelines, even when other factors

that could further reduce the extent of the release, such as contingency plans, suppression systems or onsite fire departments, are not considered.

The emergency planning chemical exposure guidelines used in the accident analyses are Emergency Response Planning Guidance (ERPG) values or their equivalents. ERPG values are developed by the American Industrial Hygiene Association (AIHA). The specific ERPG value selected for evaluation of the exposure to offsite populations is the ERPG-2 value. Below the ERPG-2 value, nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible health effects or symptoms severe enough to impair their ability to take protective actions. The emergency planning radiological exposure guidelines used in the accident analyses are the EPA Protection Action Guides (PAGs). For offsite populations, the EPA PAG selected for comparison is a whole body dose of 1 to less than 5 rem and a thyroid dose of 5 rem to less than 25 rem. If projected exposures are within this range, some protective actions are recommended, but evacuation is not mandatory.

The starting point of the hazard analysis process for the hazardous waste management units to be located at the DWTF is the Preliminary Hazards Analysis (PHA) Report for the DWTF. A similar report has been drafted for the modifications to be made to Building 280 to convert it to use as a storage unit for hazardous, mixed and radioactive waste. These PHA reports document the results of hazard analyses which were performed early in the design and planning phases in order to classify the hazard level of the proposed facilities. Additionally, these PHA Reports were used as the basis for the postulated accident discussion found in section 4.1.3 of the June 6, 1996, Final Environmental Assessment Under DOE NEPA Regulations for the DWTF ("1996 NEPA EA"), Item 6 on the Initial Study's Reference List. DTSC has reviewed and considered the 1996 NEPA EA postulated accident discussion and incorporates it herein by reference.

Preliminary Safety Analysis Reports (PSARs) for the DWTF provide pre-operational refinements to the preliminary hazard analysis documented in the DWTF PHA. These PSARs include the August 1997 Phase 3B PSAR (Building 695, Building 696 and Building 693 Annex). Review of the PHA and PSAR show that the emergency planning chemical (ERPG-2) and radiological (less than 5 rem whole body/25 rem thyroid) exposure guidelines are achievable at the DWTF.

Prior to completion and initial operation of the DWTF, a Final Safety Analysis Report (FSAR) will be prepared. The FSAR will report the results of the final safety analysis, which will build on the results of the PSARs. The FSAR will be used by DOE to finalize "Technical Safety Requirements (TSRs)" for the DWTF. TSRs include requirements which have been identified through the hazard analysis process as necessary to ensure that the emergency planning chemical (ERPG-2) and radiological (less than 5 rem) exposure guidelines are not exceeded. Once the FSAR is completed and TSRs are finalized, LLNL may not make any physical, procedural or operational changes to the facility which could result in a change to one or more TSR without first obtaining formal DOE approval.

Hazard analysis reports for the existing hazardous waste management facilities (Area 612, Area 514, and Building 693) include the initial FSAR which was drafted in 1995. This FSAR is referenced in the PHA for the DWTF which was used as a basis for the postulated accident discussion contained in the

1996 NEPA EA (Item 6 on the Initial Study's Reference List). The initial FSAR has been updated in accordance with DOE requirements. The current FSAR is dated August 1998. TSRs at the existing facilities that will be permitted have been finalized. The TSRs currently in effect are identified in the September 1998 TSR document for the existing facilities. These TSRs include a Chemical Hazard Control Program. The TSRs may not be changed without first obtaining formal DOE approval.

Some details of the hazard analyses reports are summarized below. Actions that LLNL has taken to ensure that the ERPG-2 or equivalent values are not exceeded are also discussed below. The complete reports and the September 1998 TSR document for the existing HWM facilities have been made available at the public repository.

Chemical Release Analyses

The chemical release analyses identified Single Container Inventory Limits (SCILs) as the control necessary to ensure that the maximum exposure to an individual beyond the nearest site boundary due to an accident involving waste chemicals will be less than the applicable ERPG-2 or equivalent values. Consequently, to meet the Chemical Hazards Control Program TSR at the existing hazardous waste management facilities, LLNL implemented a SCIL Control Program to ensure that the SCILs for chemical wastes to be stored or treated at the HWM facility are not exceeded.

Compliance with the SCIL Program is required by the HWMF Permit for all HWM facilities, including B280 and the DWTF. See Part VI.2.6 and Appendix III.A, Waste Analysis Plan, section 4.3.3 of the Part B Permit Application. Additionally, in order to emphasize the importance of the SCIL Program and to provide more effective enforcement, a condition has been added to the permit to require compliance with the Chemical Hazards Control Program. See Condition IV.14 of the HWMF Permit.

The hazard analyses determined that the reagents and pure chemicals used for treatment of the hazardous waste presented greater hazards than the typically dilute chemical wastestreams. These pure chemicals include hydrogen peroxide, sulfuric acid, sodium hydroxide and ferric sulfate. The potential releases of these chemicals from the existing Hazardous Waste Management Facilities and the DWTF were analyzed under the following accident scenarios: earthquakes, extreme winds or tornados, floods, fires, leaks and spills, pressurized releases, waste handling operations, criticality, transportation accidents, explosions and aircraft crashes. Since reagent, pure or process chemicals will not be located in Building 280, an analysis of the potential releases of these chemicals was not conducted in that building. The results of the postulated accident analyses for these reagents at the existing Hazardous Waste Management Facilities showed that the ERPG-2 or equivalent values would not be exceeded based on the design features of these facilities.

In the PHA for the DWTF, the accidents were postulated to involve 55-gallon drums of proposed reagents at the nearest distance to the outer fence line (85 meters). The results of these postulated accident analyses for sodium hydroxide and hydrogen peroxide showed calculated site boundary exposures to exceed the acceptable ERPG-2 equivalent values. LLNL's analyses showed that restricting the storage location of the proposed reagents to 150 meters or more from the fence line

would ensure that the ERPG-2 equivalent value would not be exceeded. In the PHA, LLNL discussed restricting this storage of 55-gallon reagent drums to the west side of B693 as one way to ensure that this 150 meters minimum distance would be achieved. Prior to performing the Phase 3B PSAR for the DWTF, however, LLNL modified the planned design to provide for storage of reagents at a new location, even farther from the closest outer fence line than the distance between that fence line and the west side of B693. As shown on Figure 9 of the Initial Study, this design modification now requires the reagents to be stored in tanks outside the west side of B695 and to be fed into the liquid waste treatment tanks inside of B695 as needed through stainless steel piping. These design changes are taken into account in the Phase 3B PSAR for the DWTF. The results of the postulated accident analyses for the reagents, including hydrogen peroxide and sodium hydroxide, in the Phase 3B PSAR show that storage of reagents along the outside the west side of B695 reduce the postulated accident exposures at the closest outer fence line even more than storage inside the west side of B693. Additionally, storage in tanks and use of the hard-piped feed system, instead of storage in 55-gallon drums and transportation of the drums into B695, as needed for liquid waste processing operations, reduces the risk of a release to the environment from transportation accidents.

The potential releases from the uncontrolled chemical reactions which could result from the mixing of incompatible waste (e.g., potassium cyanide) or reagent chemicals (e.g., sodium sulfide) with strong acids (e.g., sulfuric acid) have been evaluated for the existing Hazardous Waste Management Facilities. The results of the postulated accident analysis showed that the ERPG-2 or equivalent values were not exceeded at the relevant site boundaries. The Phase 3B PSAR for the DWTF indicates that uncontrolled chemical reactions which could result from the mixing of incompatible waste are not expected to have offsite consequences. The consequences of uncontrolled chemical reactions at the DWTF will be further analyzed in the DWTF FSAR. Any resulting operational or administrative controls or design changes necessary to meet the ERPG-2 values or equivalents will be enforceable under Condition IV.14 of the HWMF Permit.

The potential release of process chemicals was also considered further and one chemical, chlorodifluoromethane (Freon-22), used in the cold vapor evaporator was subjected to additional accident analysis. The results of the postulated accident analyses of the potential releases of process chemicals showed that the Bounding Accident at the existing HWM facilities would be an earthquake initiated release of chlorodifluoromethane (Freon-22) refrigerant from the cold vapor evaporator in Area 514-1. The analysis of the consequences of this postulated release shows that the release would not exceed the ERPG-2 equivalent value. After the DWTF is constructed and operable, cold vapor evaporation will be performed in the DWTF (Building 695) and the Building 514 operation will be permanently shut down. The 1997 Phase 3B PSAR determined that a pressurized release of Freon-22 refrigerant from the cold vapor evaporator in Building 695 would also be a Bounding Accident for pressurized releases from the DWTF. The analysis of the consequences of this release will be further analyzed in the DWTF FSAR. Any resulting operations or administrative controls or design changes necessary to meet the ERPG-2 values or equivalents will be enforceable under Condition IV.14 of the Permit.

Radiological Release Analyses

The radiological release analyses were performed in a manner similar to the chemical release analyses. The same accident scenarios were considered. The principle mechanisms for release of radioactive material were determined to be earthquake, fire, spill and leak.

The types of radioactive materials considered in the analyses included transuranic (TRU) waste, tritium, depleted uranium, and low level aqueous waste. For each credible postulated accident scenario at the DWTF, the existing HWM Facilities to be permitted (Area 612) and Building 280, the amount of TRU, tritium, depleted uranium, or low-level aqueous waste released that becomes airborne was determined and used to identify the Bounding Accidents. Results were reported in 70-year committed effective dose equivalent (CEDE) units for offsite exposures. The CEDE results were then compared to criteria set forth in the EPA Protection Action Guides (PAGs).

The Bounding Accidents that resulted in the largest offsite doses involve TRU and tritium. The TRU Bounding Accident is caused by a forklift puncturing one TRU drum in Building 625. The contents of the drum are assumed to catch on fire releasing TRU to the environment. The tritium Bounding Accident may be caused by an earthquake, drum handling accident or fire, damaging one or more drums containing tritium. The resulting exposures from these Bounding Accidents are less than the 5 rem EPA PAG for offsite exposures; more specifically, the resulting exposures at the site boundary were 4.4 rem from the TRU Bounding Accident and 0.99 rem from the tritium Bounding Accident.

Transportation Upset Risks

DTSC has not identified any new risks from the shipments resulting from the permitting of facilities that would exceed those from generator shipments or non-waste chemical hazardous materials shipment. Therefore, the level of risk of upset from transportation would not be increased by the project.

The volume of hazardous waste shipped, another potential source of transportation risk, has declined substantially. The potential adverse offsite waste transportation impact from continued operation under the permit is expected to become even more insignificant over time given the fact that the volume of waste generated at the lab has been declining over the past several years due to declining research activities, more efficient treatment, and waste reduction efforts. See the response to Comment 41 for further detail.

A third criteria often evaluated in transportation risk is the route traveled. As discussed in comment 38, based on highway accident statistics, there is no inordinate risk of transportation for the route required to be traveled to reach the interstate freeway system from the facility.

DTSC does not regulate radioactive constituents and the permitted facilities will not handle high level radiation materials. Any radioactive constituent of mixed or combined waste will be controlled for shipment by DOE regulations. DOE and LLNL have previously evaluated the risk of radioactive transport from LLNL in their 1992 EIS/EIR and the subsequent supplements.

Based on the above information, DTSC finds that there is no substantial evidence that there could be a significant transportation accident risk from the permitting of the facility.

Cumulative Effects With Sandia Labs

Overall Operations

The trend for both LLNL and Sandia Laboratories is slow decline or stability rather than growth. Employment has declined over 15 percent at LLNL and by more than 25 percent at Sandia Labs.

Hazardous waste volumes for both waste generation and waste shipment declined substantially at both sites. At LLNL, it declined further from the average of 1993-1997 in 1998 and is currently less than a third of the 1992 EIS/EIR prediction for the year 1998. Mixed waste generated has also declined by more than 30 percent at LLNL. Sandia has also decreased their generation of hazardous waste by 50 percent since 1992 and shipments have declined proportionately.

Potential for radiological releases from both facilities has been previously evaluated by LLNL in the 1992 EIS/EIR but is beyond the Department's jurisdiction. Mixed or combined waste stored in the proposed permitted units would not be a major contributor to any such release because they represent a very small proportion of the radiation source for the two sites.

Proposed Project (Hazardous Waste Units)

With respect to hazardous waste, the proposed permit does not anticipate a substantial waste generation growth. As indicated above, hazardous waste generation onsite is not increasing. There are provisions in the permit which limit the acceptance of offsite waste. Further, there is a transition plan in place to decommission old facilities once their replacement units are operational to assure that the permit will not provide excess treatment capacity. DTSC also believes that the new facilities included in its permit will result in an overall decline in waste shipments through more modern and efficient operation.

Based on the above information, DTSC finds that there is no substantial evidence that there could be a significant cumulative accident risk from the permitting of the proposed project facility.

Comment 36

The IS further contains no detailed analysis of risk from the inadvertent release of materials as a result of accident, except the list of generalized possibilities and the conclusion (p. 57) that the public's risk of exposure to hazards (unspecified) is "low:"

This level of analysis does not fulfill CEQA's purpose of demonstrating to the public that it is being protected. CEQA Guideline sec. 15003. The purpose of an EIR is to "insure that the integrity of the process of decision by precluding stubborn problems or serious criticism from being swept under the rug." *Sutter Sensible Planning, Inc. v. Board of Supervisors* (1981) 122 Cal.App.3d 813, 820.

Confining the level of serious risk analysis within the IS to routine operations does not satisfy the above public policy. DTSC should not simply rely upon a study of existing risks from routine operations, but should further attempt to assess the potential health impacts from accidents involving hazardous or radioactive wastes. The IS admits to the possibility of accidents, but makes no effort to engage in any accepted modeling analysis of health impacts. The health risk assessment (mentioned on p. 56) was for routine operation, not accidents. The summary is inadequate since there is little data that tells us how the conclusions were generated.

The potential of accident is not simply hypothetical, since LLNL has been subject to a number of NOV's during the pendency of the Part B application. Unfortunately, this history is all but nonexistent in the IS, which discloses only the single NOV between the beginning of 1996 and the date of authorship of the IS. Western States Legal Foundation (WSLF) formally requests that the administrative record be augmented to include the full record of both inspection reports and NOV's generated since the original submission of the RCRA Part B permit.

[1.d, 8]

Response

LLNL HWM Facility design features, engineering controls, administrative procedures and proposed operational controls described in the Part B Permit Application include those necessary to meet design, administrative and operational criteria independently required by DOE. The DOE criteria are developed through a formal hazard analysis report process prescribed by DOE orders and standards. The June 6, 1996, Final Environmental Assessment Under DOE NEPA Regulations for the DWTF, Item 6 on the Initial Study's Reference List, summarizes the results of preliminary hazard analyses for the proposed DWTF and B280 HWM facilities. The DWTF analysis relies, in part, on a hazard analysis of the existing LLNL HWM facilities. These hazard analyses demonstrate that the proposed and existing LLNL HWM facilities can be designed and operated to meet the DOE criteria. Subsequent hazard analyses validate the results of these earlier analyses. DTSC has reviewed these reports and concluded that LLNL's operating in conformance with the DOE criteria will ensure the risk of upset is insignificant, even when the-items discussed in the Initial Study which could reduce the consequences of a release even further do not work as planned. Such items include the LLNL contingency plan, suppression systems and onsite fire department response. Consequently, when these items do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant. For a further discussion of the DOE criteria, hazard analyses and permit controls, see the Response to Comment 35.

The administrative record maintained at the DTSC Berkeley Office includes all inspection reports and NOV's since 1985 and is available for public review upon request.

Comment 37

The IS further assumes, without foundational fact, that offsite shipments of radioactive wastes will continue without interruption. No mention is made in the IS regarding the several-year moratorium on acceptance of LLNL radioactive wastes at the Nevada Test Site (NTS) in the early 1990s, which resulted from the inadvertent shipment of unaccepted hazardous wastes to Nevada.

[8]

Response

The management of radioactive wastes for disposal, treatment or storage is outside the scope of this permit. However, the statement above is not accurate. The NTS waste shipment moratorium was unrelated to LLNL's shipping practices. There was one, and only one, shipment in which waste was shipped as radioactive based on the most current information available at the time of shipment. Once the waste reached NTS, the generator belatedly informed Hazardous Waste Management (HWM) that there may have been some Kimwipes (paper tissues) which may have been used in conjunction with solvents to degrease radioactive components. This made the waste suspected to be mixed waste. LLNL representatives went to NTS and were able to verify, through the paperwork, that 12 of the containers did not contain the Kimwipes but that 18 may have contained Kimwipes (the containers could not be opened at NTS without the proper facilities). Therefore, the containers were returned to LLNL for additional characterization.

Independent of this incident, in 1990 NTS revised its Waste Acceptance Criteria (WAC). The revision was undertaken primarily for two reasons: 1) to bring NTS waste acceptance procedures into compliance with DOE Orders and 2) to strengthen the acceptance program in response to concerns from the State of Nevada.

The new WAC mandated that each site shipping waste to the NTS develop a Waste Certification and a Quality Assurance program. The WAC also required that DOE/NV audit and approve each generator's program before that site would be allowed to resume shipping waste to NTS. This requirement resulted in a suspension of all DOE waste generators shipping waste to NTS including LLNL. LLNL developed the required program and was approved by DOE/NV in November of 1993 for resumption of waste shipments to the NTS. Since 1990 LLNL has also developed additional disposal options for radioactive waste and is no longer solely dependent on the NTS for disposal of radioactive waste. Therefore, another interruption in radioactive waste shipments is highly unlikely.

Comment 38

Offsite transportation of waste. The IS fails to describe the routes and destinations for transporting hazardous waste from LLNL to dump sites. Only LLNL's peripheral streets and onsite roads are described. When it leaves LLNL, where does the waste go and how does it get there? These are major questions because of waste transport's potentially adverse impacts on public health and safety, as well as on the environment.

[1.b, 12]

Response

Typically, hazardous waste destined for offsite treatment, storage or disposal are transported from the Main Site to the following facilities: Ensco, Inc. located in El Dorado, Arizona; Ensco West, Inc. located in Wilmington, California; EnviroSafe Services of Idaho located in Grandview, Idaho; Safety-Kleen located in Aragonie, Utah; Safety-Kleen located in Westmorland, California and Safety-Kleen located in Buttonwillow, California. Mixed wastes are normally transported offsite to Envirocare located in Clive, Utah. The Initial Study stated that access to the Livermore site is from two arteries which connect the site to Interstate 580 (I-580). These arteries are Vasco Road and Greenville Road. It is expected that shipments of hazardous waste from LLNL would use I-580 to connect to other highways to ultimately arrive at the designated offsite treatment, storage, and/or disposal facility.

Shipments of hazardous and mixed waste from regulated hazardous waste management facilities at LLNL to offsite facilities are expected to average 20 per month. On the average, each shipment will consist of only one vehicle ranging from small trucks to semi-trailers. This would result in less than one vehicle per day traveling along the I-580 corridor. The annual Average Daily Traffic (ADT) flow of vehicles on the I-580 corridor at Greenville Road junction is 109,000 (CalTrans, 1997). Although the actual routes to each of these offsite facilities were not described in the Initial Study, no significant impacts to the I-580 corridor is expected based on the negligible increase of one vehicle per day added to the ADT of 109,000 which is still within capacity. Therefore, traffic associated with the project is not expected to increase traffic hazards.

Accidents involving all trucks carrying hazardous materials along the I-580 corridor between the I-680 and I-205 junctions occurred at approximately one accident per year (based on data between 1995 to 1997) (CalTrans, 1998). There is no recurring location for these accidents, which consisted primarily of collision with an object by a single driver heading straight on the freeway.

DTSC reviewed the total highway accident statistics for I-580 to determine whether there were any inordinate risk to hazardous waste transport over this roadway, for which there is not a logical and convenient alternative highway route to connect to the interstate freeway system. The stretch evaluated was the approximately 21 miles from I-680 in western Alameda County to the San Joaquin County line near the I-205 interchange.

Statistics were reviewed for total accidents injury accidents and accidents resulting in fatalities. They were compared to the state average per million vehicle miles traveled. Information was the most recent and accurate available from the Oakland CalTrans (State Department of Transportation) District 4 (Oakland) office (CalTrans, 1998) and covered the 3½ year time span from January 1995 to June 31, 1998. For the overall route, the following information was provided:

Accidents per million vehicle miles traveled:

	West Bound	State Average	East Bound
Total	.72	.71	.63
Injury and Fatality	.24	.27	.22

This information indicates that total accidents for the east bound traffic was 11% below the state average while west bound traffic was 1.5% above the state average. Averaging both directions, this overall route was slightly below (0.5%) the state average rate for accidents. This indicates no overall inordinate transportation risk over I-580.

Looking more closely at severe accidents leads to the same conclusion. Both east bound and west bound directions were below the statewide average for injury and fatality accidents. The east bound traffic was 18.5% below the state average while the west bound traffic was 11% below the state average.

A review of specific mile posts stretches of this roadway revealed no additional critical information on total accidents but did confirm that accidents were higher in both directions as the route nears the more congested Bay Area to the west, where road improvements are planned in the near future. This is deemed to be a factor of Bay Area interchange congestion and the recognized need for highway improvements in urban areas of the state, rather than a specific risk of the route. Long term improvements soon to begin may reduce accident rates in the vicinity of I-680. However, the overall risk of transport in one direction versus the other is not deemed to be a significant difference or an inordinate source of risk.

While traveling on any interstate freeway, transporters of hazardous waste are subject to U.S. Department of Transportation regulations specified under Title 49, as well as DOE orders. These regulations and orders consist of requiring vehicles to be equipped with emergency response and general safety equipment, daily inspections of transport vehicles, segregation of waste according to compatibility, identification of waste with proper labeling, and packaging in tightly closed, approved containers. Aside from the requirements imposed by DOT and DOE, there are no other known restrictions for trucks traveling from LLNL heading eastbound on I-580 up to the I-205 junction or westbound up to the I-680 junction. DTSC has not identified any new risks from the shipments resulting from the permitting of facilities that would exceed those from generator shipments or non-waste chemical hazardous materials shipment. DTSC does not regulate radioactive constituents and the permitted facilities will not handle high-level radioactive materials. Any radioactive constituent of mixed

or combined waste will be similarly controlled for shipment by DOE regulations. DOE and LLNL have previously evaluated the risk of radioactive transport in their 1992 EIS/EIR and the subsequent supplements.

It should be noted that there is less potential adverse impact from offsite transportation of waste associated with permitting the proposed Project than from denying the permit. Denial of the permit application would not stop laboratory research operations, nor would it reduce the generation of hazardous waste. Denial of a permit would not allow for improved treatment which reduces the toxicity, hazard and volume of material to be shipped. It would instead require the closure of onsite treatment and units for storage over 90 days. This would require more waste to be shipped and greater frequency of shipment from units under generator storage regulatory status.

The potential adverse offsite waste transportation impact from continued operation under the permit is also expected to become even more insignificant over time given the fact that the volume of waste generated at the lab has been declining over the past several years due to declining research activities, more efficient treatment, and waste reduction efforts. See the response to comment 41 for further detail.

References:

CalTrans, 1997 - "1997 Traffic Volumes on the California State Highway System," State of California; Business, Transportation and Housing Agency; Department of Transportation (DOT); Division of Traffic Operations, May 1997.

CalTrans, 1998 - Jerilyn Stuenkel, Office of Operations, District 4, CalTrans, personal contact on 12/18/98 and TASAS Highway Accident Database, dated 12/22/98.

Comment 39

The Initial Study does not adequately deal with possible future increases in the hazardous waste production amounts and whether the facility would have the capacity to handle them. This issue also relates to cumulative impacts.

[1.b, 1.c, 12]

Response

Planning for future LLNL facility needs is the duty of DOE and not DTSC's permit. DTSC does not control LLNL's research activities, only its waste management units. The IS analyzed the capacities of the treatment and storage units as proposed in the project. In order for the analysis of impacts under CEQA to remain valid, LLNL must operate within the capacities proposed. In addition, LLNL will be held to those proposed capacities under the conditions of the Permit. See Comment 41 regarding cumulative effects with lab operations and the potential for growth at LLNL and Sandia National Laboratory.

In the event that LLNL has the need to store and treat more hazardous and mixed waste in the future, LLNL is required by regulation to submit a permit modification request to DTSC. If warranted by the nature and extent of the modification, impacts to human health and the environment of such change would be evaluated and the public participation process would again be initiated.

Comment 40

The IS does not refer to any potential for significant treatment of offsite low level or hazardous wastes.

[8]

Response

The Project as defined does not allow for acceptance of offsite waste with the exception of minor volumes from Site 300 satellite operations.

Comment 41

The IS contains an inadequate "cumulative impacts" discussion. The brief review of recent and planned projects does not provide any basis to evaluate how such projects affect the quality or quantity of hazardous and radioactive wastes. No particular impacts from new projects are described; the document simply recites what the facilities are. Similarly, no effort is made to address the cumulative wastes generated at the Sandia Laboratory directly to the south of LLNL. It inadequately addresses how all the Lab activities would impact the environment, as well as human health and safety.

[1.b, 1.d, 8, 12]

Response

Item 17 of the IS which discusses "Cumulative Effects", described the quantities of hazardous and mixed waste that are expected to be generated from other planned projects at LLNL. As a result, the IS analyzed the potential impact that may result in an increase in the amount of hazardous and/or mixed waste to be treated and/or stored in the DWTF, Area 612 or Building 280. The IS explained that due to the uncertainty of the funding status of existing programs and new facilities from year to year in response to changing funding levels and programmatic needs, it is more likely that waste generation from new programs would be offset by canceled new facilities and the end of other existing programs. Therefore, no significant increases in hazardous and/or mixed waste generation are expected and it is anticipated that LLNL would be able to handle future increases in waste generation with the current DWTF facilities as proposed.

Review of the recent data for the site corroborates this position (See Table 1 to follow for summary data). The 1992 Site-wide EIS/EIR predicted a five year (base year 1992-1997) growth of 4.5% in waste generation based on changes in square footage of facilities operation. For a number of reasons, the presumed growth at both LLNL and Sandia has not occurred. Actual square footage, rather than growing, has declined between 2 and 2.5% at both sites.

Employment has declined between 14 and 15 percent at LLNL and by more than 25 percent at Sandia Labs rather than being proportional to square footage changes.

Hazardous waste generation, while it has varied from year to year, has clearly been declining since 1992. It declined further from the average of 1993-1997 in 1998 and is currently less than a third of the 1992 EIS/EIR prediction for the year 1998 at LLNL. Mixed waste generated has also declined by more than 30 percent at LLNL. This data is corroborated by a decline in the volume of waste shipped for the five years since 1992 (1993-1997) and by further substantial decline in 1998 to slightly over half the 1992 volume. Sandia has also decreased their generation of hazardous waste by 50 percent since 1992 and shipments have declined proportionately.

Based on the information available, hazardous waste volumes for both waste generation and waste shipment declined by a greater amount than employment, indicating less generation and shipment from research activities as well as a decrease in the overall laboratory operations.

The overall trend for both LLNL and Sandia Laboratories is slow decline or stability rather than growth. With efforts toward waste minimization in place and greater efficiency of onsite treatment processes, it is likely that further declines in waste generation and shipment, rather than growth, will result from the current overall lab operations trend.

The cumulative effects of the two laboratories operations were evaluated in 1992 for the LLNL/Sandia Labs Site-wide EIS/EIR. While it did not consider DTSC's permit decision, this EIS/EIR did consider the operation of the Interim status facilities in place at that time. The CEQA addendum to this EIS/EIR has indicated that there has not been a substantial change in the impact of these operations since the Site-wide EIS/EIR. The data above and a review of the permit files also indicate that no substantial growth or change in operations has occurred at Sandia Labs either. Changes to the LLNL facilities which were approved by the DTSC since 1992 have all been found not to result in significant environmental effects as approved.

DTSC believes that the new facilities included in its permit will result in an overall decline in waste shipments through more modern and efficient operation. The proposed permit does not anticipate a substantial waste generation growth. There are provisions in the permit which limit the acceptance of offsite waste and generation onsite is not on the increase. Further, there is a transition plan in place to decommission old facilities once their replacement units are operational to assure that the permit will not provide excess treatment capacity.

DTSC is not aware of any other specific lab activities similar to its proposed permit that may result in a cumulative effect to human health and the environment beyond those previously evaluated in either the initial study or those evaluated in the Site-wide EIS/EIR and its CEQA addendum.

A Draft Supplemental Analysis for the U.S. Department of Energy's continued operation of LLNL and Sandia National Laboratory has recently been prepared (January, 1999). While this document is not yet final, its analysis and conclusions are that the overall continued operations of the labs do not result in new or incremental significant effects from the 1992 EIS/EIR and that actions foreseeable through the year 2002 similarly would not have a significant new or incremental effect. While DTSC is not responsible for operations beyond the permitted hazardous waste facilities, the analysis in this document further corroborates DTSC's conclusion that the proposed project, and other current or future activities at either of the two lab operations would not have a significant adverse cumulative effect.

Table 1 - Changes in Waste Generation, Employment, and Square Footage 1992-1998
Lawrence Livermore National Laboratory, Main Site and Sandia National Laboratory

	LLNL				SNL			
	1992	1997	1998	Predicted 1998 ^b	1992	1997	1998	Predicted 1998 ^c
Pounds of Haz. Waste Generated	3,144,060	1,659,636 ^a	886,993	3,313,839	39,180	22,671	19,643	40,590
Pounds of Mixed Waste Generated	236,820	286,619	164,669	249,608	323	15	15	335
Pounds of Mixed & Haz. Waste Shipped	2,000,000	1,602,626 ^a	1,051,088	no data	37,820	24,082	17,339	no data
Employees	11,200	9,092	9,324	12,544	1,500	1,230	1,088	1,509
Square Footage of Buildings	5,900,000	5,762,796	5,764,032	6,218,600	830,000	847,000	847,257	859,880

Notes:

- a. Does not include one-time generation of 1,110,000 pounds of contaminated soil from NIF site PCB cleanup project.
- b. The predicted 1998 value is based on a 9% increase (by the 10th year) assumed in the 1992 EIS/EIR. Therefore, the 1998 predicted value represents a 5.4% increase over the 1992 value.
- c. The predicted 1998 value is based on a 6% increase (by the 10th year) assumed in the 1992 EIS/EIR. Therefore, the 1998 predicted value represents a 3.6% increase over the 1992 value.

Comment 42

The economic and social impacts of these operations on future Livermore Valley growth is not mentioned.

[8]

Response

CEQA limits the discussion of economic and social impacts to those resulting from a physical change caused by the Project. The changes resulting from the Permit and the DWTF construction are negligible to the Livermore Valley's growth.

The Initial Study addressed the economic and social impacts of the project by evaluating impacts to the population, housing, recreation and public services. With regard to population, housing, and recreation, the Initial Study stated that *"The proposed action would not result in an increase in employment at the Livermore site since LLNL would utilize its internal labor force to operate the project. However, there will be a temporary increase of between 15 to 20 workers during construction of the project. Since there are already 8,000 employees working at the site, this increase is considered less than significant. Therefore, the proposed action would not have any impacts to the population of the surrounding community or the Livermore site, and would not impact the local housing market or recreational opportunities."* DTSC also evaluated the impacts to public services in the Initial Study and found that since the increase in workers would be temporary and no increase in personnel will be needed for project operation, no significant increase to the Livermore population is expected. Therefore, no change to governmental services such as road maintenance, parks, recreational facilities, and schools are expected.

Comment 43

We've had 50 years of cold war, approximately. We've built up an enormous military-industrial-academic complex. Congress is starting to close down some military facilities. The DOE hasn't really been hit very hard by these close-down actions. Another issue that we have to also consider is the closing down of major facilities that have major waste problems. What are we going to do with the waste then?

[1.c]

Response

DTSC has no jurisdiction over the closure of Department of Energy (DOE) or Department of Defense (DOD) operations. It would be DOE's or DOD's responsibility to ensure that any hazardous waste

generated as a result of closure activities be managed accordingly. However, under LLNL's Hazardous Waste Facility Permit, DOE or DOD facilities other than Site 300 would not be allowed to ship their waste to LLNL since it was not included under the proposed Project. In order for LLNL Main Site to accept offsite waste, it must go through the permit modification process which would require a separate CEQA analysis and additional public input.

WASTESTREAM IDENTIFICATION

Comment 44

I saw in the underlying document and the Application lists of hazardous substances but I did not see this list in the IS. And I believe under CEQA that you're supposed to have some kind of charting so that we know about the wastestreams, where they originate, what kind of hazardous substances we're dealing with, what kind of quantities we're dealing with, where they go. I didn't see anything in the IS. And I do believe that's a deficiency right there.

[1.b]

Response

The IS stated in its Project Description that more details about the units can be found in the Part B Application, dated June 28, 1996. The IS also listed the Part A and B Application as a reference (see Attachment A of IS) while repeating only certain facts within the context of the IS document as much as necessary for the evaluation of impacts. Documents available for review at the time of public notice included the Initial Study, Draft Permit, Fact Sheet, Parts A and B of the Permit Application and the Health Risk Assessment. A listing of the wastestreams that may be stored and treated can be found in Table 2 of the Draft Permit and in Table 1 of the Waste Analysis Plan located in Volume 4 of the Part B Application dated June 28, 1996. Estimated annual quantities of the wastestreams are listed in the Part A Application. The Waste Analysis Plan also contains a list of source codes used to describe what type of process generated the waste and also describes the various types of treatment processes that the wastestreams may go through up to its final disposition. Therefore, DTSC does not consider the IS deficient since it was clear that the IS referenced the Part B Application as a source of information from which information on wastestreams could be found.

Comment 45

In general, I just wanted to point out that there's no hard data [in the Initial Study] regarding the wastestreams or which projects originated them. There are no tables of volumes or quantity of particular wastes that have been historically generated. No identification of specific hazardous materials or the quantity. Except in the most general sense, the wastes have not been characterized. As far as the project description, which facilities are handling what type or quantity of wastes, that hasn't been addressed.

[1.d]

Response

As stated in the response to Comment 44, a list of wastestreams, their estimated quantities and the units that they can be managed in can be found in the Part A and B Applications. This information along with the Waste Analysis Plan is adequate in meeting the waste characterization requirements specified by regulations. A list of projects originating the waste was not needed since each wastestream was already associated with a source code (i.e. product distillation, photo developing, etc.) that provided information on the constituents of the wastestream. Data on wastestream quantities historically generated was also not necessary because DTSC is not responsible for evaluating a facility's capacity needs. It is DOE's responsibility to plan for its future hazardous waste capacity needs, to determine the size/types of treatment and storage units needed to handle the waste and to obtain approval from DTSC to operate those units to manage those wastes. DTSC does not control LLNL's research activities, only their waste management units and is obligated to consider the volumes that the facility requests to be handled in those units.

Comment 46

Nowhere are the regulatory standards summarized in a concise and meaningful sense. What are the regulatory limits for each type of material handled at the Lab, and what are they for mixed waste?

[1.d]

Response

The regulatory standards for hazardous waste treatment, storage, and/or disposal facilities can be found in the California Code of Regulations, Title 22, Division 4.5. In addition, standards applicable only to LLNL are specified in the Hazardous Waste Facility Permit that DTSC has prepared for the facility. Specific standards include the limits on the treatment and storage capacity for each unit, limits on the types of wastestreams the facility may handle, and limits on the types of treatment activities that may be performed. The Permit containing these standards, as well as other documents, was available in the repositories during the public comment period held between September 9, 1997 and December 9, 1997. In addition, a new permit condition (see Permit Section III.3(b)) was added to clarify the specific wastestreams that would be allowed under each Form Code listed in the Permit.

Comment 47

The IS contains virtually no meaningful data concerning the current volume of types of wastes treated and stored at LLNL, or the volumes contemplated under the Part B permit. While limited information can be derived from such disparate sources as the Proposed Site Treatment Plan (August 1996) or the out-of-date 1992 site-wide EIS, these are not incorporated into the text of the IS, and the reader has no grasp of the volumes stored, produced or treated. The IS should have included an explicit table of mixed and hazardous wastestreams and quantities, as well as projections.

[8]

Response

As stated in response to Comment 44, the IS refers the reader to the Part A and B Applications for more information on wastestreams. Also, please see responses to Comments 45 and 46 which state that the Waste Analysis Plan and the Permit also contained information on the wastestreams and was available for public viewing during the public comment period.

Comment 48

The IS does not identify the specific hazardous or radioactive materials to be treated at LLNL pursuant to the Part B RCRA permit.

[8]

Response

As stated in response to Comment 44, the IS refers the reader to the Part A and B Applications for more information on wastestreams. Also, please see responses to Comments 45 and 46 which state that the Waste Analysis Plan and the Permit also contained information on the wastestreams and were available for public review during the public comment period.

Comment 49

The IS fails to address wastestreams. The IS should describe where wastestreams are generated, name of hazardous substances involved, as well as their amounts, and indicate the movements of wastestreams within LLNL. The IS fails to do this.

[12]

Response

As stated in response to Comment 44, the IS refers the reader to the Part A and B Applications for more information on wastestreams. Also, please see responses to Comments 45 and 46 which state that the Waste Analysis Plan and the Permit also contained information on the wastestreams and were available for public review during the public comment period. The Permit regulates waste as it enters the permitted units from generators. Waste generation activities prior to entering the permitted units are not subject to this Permit.

CONTAMINATION

Comment 50

The Lawrence Livermore National Laboratory sits on an aquifer used for the municipal water supply, and this has been mentioned before. That's probably the main reason why it is a Superfund site. That barely gets mentioned.

[1.d]

Response

As mentioned in Section 3 (Surface and Groundwater) of the IS, contaminants from 17 soil and sediment contamination areas investigated at LLNL contribute to groundwater contamination at the site. Impacts of the contaminated groundwater underlying the site to municipal and domestic supplies have already been evaluated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and are being addressed under the Remedial Action Implementation Plan issued in 1994. Since the impacts of the contamination are a result of prior operations and are not attributed to any existing hazardous waste management operations at the site, details on the impacted groundwater were not included in the Initial Study. However, all information regarding cleanup activities under CERCLA is available to the public at the Lab's Visitors Center on Greenville Road in Livermore; at the Livermore, Stockton and Tracy Public Libraries; and at the US DOE's Oakland Operations Office at 1301 Clay St., Oakland. Questions can also be directed to Mark Piros, DTSC Project Manager at (510) 540-3832 or Bert Heffner, LLNL Environmental Community Relations manager at (510) 424-4026.

Comment 51

The discussion within the IS of the potential for a hazardous waste spill to reach groundwater supplies does not appear to be based on the most current data from Alameda County Environmental Health Department records. These records, which are in the public domain, reflect expected transport rates of contaminants within subsurface groundwater far faster than the 270 years projected in the IS. Moreover, since the IS provides no information whatsoever as to the type of potential contaminants, the reader has no basis to judge whether the Part B embraces less or greater volatile materials capable of varying speeds of dispersion through the water table. The IS fails to mention the historic pattern of plumes of contaminants from LLNL which are the subject of Superfund programs.

[8]

Response

The IS states the fact that there is existing groundwater contamination at the site. The groundwater contamination is a result of historical releases and not as a result of HWM operations. The groundwater contamination from historical releases are addressed under CERCLA. The clean up of the soil and groundwater under CERCLA is overseen by USEPA, the Site Mitigation Branch (SMB) of the DTSC, as well as the Regional Water Quality Control Board.

The estimated time frame of 270 years for contamination to reach groundwater supplies is mentioned in the "Description of Environmental Setting" under Section 1 (Earth) of the IS. The 270 year projection was obtained from the EIR (August 1992) prepared by DOE. This projection was mentioned for background information and in the context of the existing contaminated soil being addressed under CERCLA. It was not meant to be used as a projection of the rate of dispersion of potential contaminants from the project.

Analysis of the impacts of potential contaminants from the project resulting from a spill did not include calculation of a dispersion rate. The potential impacts from a spill were analyzed in Section 8 (Risk of Upset) of the IS in which DTSC concluded that engineering and administrative controls such as secondary containment systems, emergency shut-off controls and daily inspections would reduce the possibility of a spill to the surrounding environment (i.e. soil) to less than significant levels. Should a spill occur, the permit provides an enforcement mechanism that enables DTSC to ensure that any areas of future contamination are cleaned up to levels that are protective of human health and the environment. See the response to Comment 62.

Comment 52

Since 1952 Livermore Lab has generated a wide variety of waste resulting on its work on nuclear weapons, fusion, lasers, et cetera, et cetera. And in 1987, the Lab's Main Site, my neighbor, was placed on a National Priorities List as the Superfund site, one of the most contaminated sites in the country. And Livermore's actually famous even in the annals of Superfund because it has two sites on the Superfund list.

In 1990 the Lab's Site 300 in the hills between Livermore and Tracy was put on the Superfund list with very similar types of contamination. The Main Site is contaminated not only with the hydrocarbons and the volatile organics, but also carbon tetrachloride, freon, chromium and tritium -- that is radioactive hydrogen -- in the groundwater. Some of those contaminants are also in soil.

And, additionally, the Lab just finished cleaning up some plutonium in soil under the Superfund process onsite.

And Site 300 contaminated again with these volatile organics like TCE with tritium, the radioactive hydrogen, and also high explosives and uranium above the MCLs.

There is very little mention in the documentation leading up to this Permit that the Lab is already a Superfund site. So rather than issuing a Hazardous Waste Treatment and Storage Facility Permit which would allow the Lab to, essentially, conduct business as usual, it's sort of -- when you issue a permit, it's sort of an imprimatur of acceptability with respect to their practices.

[1.a]

Response

As mentioned in response to Comment 51, the clean up of the soil and groundwater under CERCLA is currently being overseen by DTSC's Site Mitigation Branch (SMB). Therefore, DTSC is fully aware that LLNL's historical waste management practices have resulted in LLNL becoming a Superfund site and has considered this fact in its permitting decision. However, DTSC's recommendation to issue a Permit is not just based on a facility's history but also on the actions taken by the facility to correct past mismanagement and on its current operations. DOE/LLNL has implemented groundwater remedial actions at four permanent groundwater treatment facilities and seven portable treatment units all aimed at preventing the offsite migration of groundwater contamination. DTSC has also reviewed LLNL's current waste management practices as described in its Permit Application and finds that they meet the regulatory requirements for the protection of public health and the environment. DTSC also conducted an evaluation of the potential impacts of the proposed project as required under CEQA and concluded that the proposed project would not have a significant effect on the environment. See also the response to Comment 62.

Comment 53

Additionally, in terms of why a permit shouldn't be given now, as you probably know, recent excavation of the Lab's National Ignition Facility construction site has uncovered unauthorized toxic waste dumping. This was just last month when construction crews with a backhoe excavating earth at the NIF construction site ran into this dump. They excavated over 100 capacitors.

By the way, I'm a fan of irony. And it turns out that these capacitors were from a previous Livermore Lab fusion program. So the ghosts of fusion-past have visited fusion-present at Livermore.

But it was a very, very serious dump. Many of these capacitors which were large, larger than a microwave oven, about two feet by two feet, each containing about two pounds of PCB-laden oils, a number of them leaking.

Also they found 75 crushed waste drums marked "radioactive," each with about an inch of concrete in the bottom. They believe that these drums might have been prepared, but maybe not used, for the program where they were dumping radioactive waste off the Farallon Islands.

They found soil in the area -- their initial monitoring and analysis found high levels of chromium, mercury and molybdenum. And they sent, the last count that I got, 37 truckloads of contaminated soil to a disposal site in Utah.

This discovery raises serious questions about the Lab's past hazardous waste practices, given that during a construction project in the '80s a mere 200 feet away they uncovered another heretofore, or theretofore, unknown hazardous waste dump containing capacitors with PCBs and radioactive wastes. And given that a mere 200 feet from that excavation there were additional undocumented dumpings of waste that have been found. There is at least the possibility that there are other surprises, toxic and perhaps radioactive, buried out in the eastern quadrant of Livermore Lab.

Under the Federal Resource Conservation and Recovery Act, which you folks from the State are authorized to implement in California, you should consider seriously and you should require a comprehensive RCRA Facility Assessment (RFA) to identify the NIF burial sites areas of concern in the surrounding area before proceeding any further with this permitting process and this RCRA facility assessment should augment other measures, applicable State and federal regulations.

[1.a, 1.c]

Response

During September 3-12, 1997, 112 capacitors containing PCBs were unearthed at the NIF construction site located in the northeast quadrant of the LLNL Main Site. The capacitors and about 766 tons of PCB-contaminated soil were removed and managed as hazardous waste [Action Memorandum for an Emergency Removal Action at the NIF Construction Site, LLNL, February 1998]. In addition, approximately 75 drums containing concrete were unearthed near where the capacitors were discovered. Certified analysis of soil samples obtained from the areas showed metal concentrations within background levels except for molybdenum. However, molybdenum concentrations did not exceed hazardous waste threshold limit concentrations. Also, the soil did not contain detectable levels of volatile organic compounds and was allowed to be used onsite according to regulatory agencies. The drums were removed, determined to be non-radioactive and non-hazardous, and disposed of appropriately.

A Joint Stipulation and Order was entered into between the Natural Resources Defense Council (Attorneys for the Plaintiffs) and the U.S. Department of Justice (Attorney for the Defendants) on October 27, 1997, which required LLNL to conduct an evaluation to identify whether and where hazardous, toxic, and/or radioactive materials may be buried in areas in and around the NIF construction site. LLNL was also required to provide a report every 90 days summarizing any findings from its evaluation until the end of the investigation activities. A total of five quarterly reports have been submitted. Results from the reports so far have identified no additional buried hazardous, toxic, and/or radioactive materials on the basis of a review of available reports, studies, maps, aerial photographs and other available records; interviews of former and current LLNL employees and additional geophysical surveys, excavation, drilling, and soil and groundwater sampling.

The investigation activities conducted under the Order are similar to the activities that would be performed under an RFA. DTSC finds that the preparation of an RFA for the purpose of identifying additional burial sites in the surrounding area of the NIF construction site would be unnecessary.

To determine whether the potential exists for finding hazardous waste disposal or burial sites at the eastern quadrant where the DWTF is proposed, the following documents and past activities were considered:

- A report titled "*Preliminary Report of the Past and Present Uses, Storage, and Disposal of Hazardous Materials at the Lawrence Livermore National Laboratory*," December 1985, was prepared by LLNL in response to a request from California Department of Health Services. The report included studies of historical records and aerial photographs. Maps studied for the report date as far back as 1942. Results of this report did not identify any hazardous waste disposal or burial sites in the proposed DWTF site.
- As part of the seismic studies, three trenches were excavated in the proposed location of DWTF in 1985. The trenches were 36 inches wide, 12 to 16 feet deep and totaled approximately 1,300 feet in length. No evidence of hazardous waste disposal or burial sites was observed as a result of the trenching activities.
- In 1989, EPA performed a RCRA Facility Assessment (RFA) on the entire Livermore site. The document titled RCRA Facility Assessment, July 31, 1989, did not identify any hazardous waste disposal or burial sites in the proposed DWTF site.
- A remedial investigation was conducted in order to characterize the source and nature of hazardous materials that may have reached the soil, sediment, groundwater, surface water, or air for remediation purposes under CERCLA. Findings from this investigation are contained in the document titled "*CERCLA Remedial Investigations Report for the LLNL Livermore Site*," May 1990. The report did not identify any hazardous waste disposal or burial sites in the proposed DWTF location.
- In July 1995, LLNL conducted sampling and analysis at the DWTF site in areas where excavation would be necessary. Samples as deep as 10 feet have been taken in locations within the proposed DWTF site, and analyzed for hazardous constituents. Trace amounts of organic materials were detected in some samples taken at a depth of 4 feet and less and are most likely attributable to general traffic in the area. Other sampling locations resulted in non-detectable levels of organic constituents. These results were not indicative of the presence of hazardous waste disposal or burial. A garden plot constructed in the same area in 1974 to study the resuspension of plutonium-contaminated dust and the uptake of plutonium into agricultural plants was also sampled. The results showed no radioactive contamination above background levels normally found within the Livermore Valley.

- In 1998, after the capacitors were found at the NIF site, LLNL reviewed historical records and sent letters to all current LLNL staff who had been employees prior to 1984, and to all retirees on the available retired association mailing list. The letter requested a response if the recipient had knowledge of waste disposal or burial practices in the northeast quadrant (future location of DWTF) of LLNL's Main Site. In-depth interviews were conducted with persons who had direct knowledge of the issue. Maps and aerial photographs that portrayed the Main Site during the era of potential discussion were used. This was essential because recollections were commonly tied to roads and features no longer in place. The results of the reviews and interviews pointed to hazardous material burial sites that have already been found to date.

Based on the above documentation and activities that have occurred within the DWTF site, it does not appear that a high potential exists for finding hazardous waste disposal or burial sites at the proposed DWTF site. However, in the unlikely event that hazardous waste are encountered, LLNL is required under the Federal Facility Agreement to conduct any removal action in a manner consistent with the Agreement, CERCLA and the National Contingency Plan (NCP).

As such, removal actions would include halting construction activities and cordoning off the area, preparing a cleanup plan, informing and obtaining necessary approvals from the Livermore site Remedial Project Managers (RPMs) which include representatives of state regulatory agencies such as DTSC and performing cleanup activities and verification sampling. All cleanup activities are also required to be consistent with the cleanup objectives specified in the Record of Decision (ROD) for the site (see response to Comment 54).

In October 1998, LLNL found two soil samples contaminated with PCB's above the federal threshold standard for PCB contamination from excavation associated with the East Traffic Circle Drainage Improvement Project. LLNL concluded that the PCB contamination is residual contamination from the landfill that was closed in 1984 and that this residual contamination does not indicate the presence of any previously unknown or undiscovered buried hazardous, toxic, or radioactive objects. Although the newly found PCB contamination does not pose any threat to public health or to the environment, LLNL is conducting a new investigation into the extent of the PCB contamination in the East Traffic Circle area in accordance with CERCLA and in consultation with the US EPA, DTSC, and the San Francisco RWQCB. Results of future investigations will be submitted in continuation of the quarterly reports required to be submitted under the October 27, 1997 Order.

Comment 54

Livermore Lab has a history of ongoing problems with its waste. First off, there's groundwater contamination. Although there have been steps taken to monitor, control and remedy the groundwater pollution problem, and our group works a lot on ensuring that is done to the best of the Lab's ability, the environmental threat still persists today.

Some examples, earlier this year the Lab found its storm drains embedded with mercury, which is an extremely toxic material. These drains may have contributed mercury-laden runoff into the already contaminated groundwater and, perhaps, into the surface water as well, into the soil.

Also Livermore Lab has recently acknowledged that there's a possibility they will run into contaminated groundwater while excavating for the National Ignition Facility. And they've applied for a dewatering permit to pump the area dry, if necessary. And there are a lot of questions about what the impact might be on the overall clean-up, if they were to do that as well as what the impact might be on employees if they do bleed into the groundwater there.

Also, at the Lab's Site 300, during 1982 and '83 and perhaps again in 1996, the groundwater rose, saturating the waste buried in disposal pits. And then when the groundwater receded, it contaminated groundwater at deeper levels. And, in fact, there are particularly high levels of radioactive tritium in the groundwater there, in part, because of this process.

[1.a]

Response

The purposes of the Federal Facility Agreement dated November 1988 is to ensure that the environmental impacts associated with past and present activities at LLNL are thoroughly investigated and that appropriate remedial action is taken as necessary to protect public health and the environment. Under the Record of Decision signed on August 5, 1992, the cleanup objectives for all contaminants originating at LLNL are to:

1. Prevent future human exposure to contaminated groundwater and soil.
2. Prevent further migration of contaminants in groundwater.
3. Reduce contaminant concentrations in groundwater to levels below MCLs, and reduce the contaminant concentrations in treated groundwater to levels below State discharge limits.
4. Prevent migration in the unsaturated zone of those contaminants that would result in concentrations in groundwater above an MCL.
5. Meet all discharge standards of existing permits for treated water, and to treat vapor so that there are no measurable atmospheric releases from treatment systems.

Remedial actions pursuant to CERCLA are currently being undertaken by LLNL to meet the above purposes and objectives and will continue until any environmental threats that still persist today and in the future are addressed.

LLNL has been working pursuant to CERCLA to document the occurrences of mercury that may be found historically in sediments. The mercury found in the storm drains as part of LLNL's routine storm drain maintenance activities was found in the hard pan sediments deposited in storm drains from historical activities. The suspected source of the mercury found in these sediments no longer exists at

LLNL. Mercury has not been detected in routine storm water runoff sampling or in groundwater wells located down gradient of locations where mercury was found.

In regards to NIF activities, LLNL took measures to establish a procedure to assure that in the unlikely event that NIF excavation activities contacted groundwater or perched water bearing zones, the groundwater would be tested to assure it was not contaminated. The procedure also included an option to treat the groundwater if necessary. However, this alternative was never implemented because the NIF project excavation never reached the water table, nor did it encounter perched water. Existing groundwater monitoring data from the area indicated that even if the NIF construction project came in contact with groundwater beneath the NIF project site, the groundwater would be below Maximum Contaminant Levels and would meet direct discharge limits established in the LLNL CERCLA Record of Decision.

None of the hazardous waste management operations proposed for continued operation have been identified as contamination sources under CERCLA investigation and cleanup activities at the site since it has been allowed to operate under interim status. These activities are in response to historic laboratory materials releases and disposal. Such cleanup activities are symptomatic of older industrial plants and DOE facilities throughout the country and the practices that caused the releases pre-dated many of the current environmental laws.

Groundwater contamination at Site 300 is currently being addressed under a Federal Facility Agreement revised in 1997 and is beyond the scope of the proposed permit action. However, the comment is duly noted.

Comment 55

The RCRA-CERCLA interface needs to be really seriously considered in this Permit. It's not enough just to say there's a Federal Facilities Agreement and therefore it'll all be handled under CERCLA, and that's a-okay, we don't have to deal with it in permitting.

Well, the situation, as it stands now, and this is a problem with the mercury in the storm drains and some of these other things, is that the Laboratory is free to choose and utilizes the least stringent standard. They often decide under what process it is they're going to clean it up and to what levels by shopping for the least stringent standard and using one one time and another the other time.

And, as you know, RCRA and CERCLA were intended for different purposes. CERCLA was intended to protect groundwater mostly. And so the MCLs under CERCLA are all groundwater standards. And when the Lab goes immediately to CERCLA, basically, they say they only have to clean up if it would be above the MCL for that contaminant when it reaches the groundwater, which is

a very complex modeling procedure to determine that probability. And the bottom line is that a lot of stuff is getting left in the soil out there. And that interface needs to be reconsidered before going forward with this permit.

[1.a]

Response

The Corrective Action section of the Permit states that there are ongoing remediation activities being conducted under CERCLA pursuant to a Federal Facility Agreement (FFA). It further acknowledged that the parties to the FFA (i.e., DOE, DTSC, US. EPA, and RWQCB) intend that any remedial action selected, implemented and completed under the FFA shall be deemed by the parties to be protective of human health and the environment such that remediation of releases covered by the FFA shall obviate the need for further corrective action under RCRA with respect to those releases. DTSC believes that RCRA corrective action objectives are adequately addressed under CERCLA and the FFA and the Permit will defer any necessary corrective action to the remedial activities currently being conducted under the CERCLA authority. DTSC is a responsible agency with regard to CERCLA activities and will be involved in setting appropriate cleanup levels and conducting oversight activities. However, should DTSC find, at any time, that RCRA corrective action obligations are not being met, it may modify the Permit to require corrective action.

Comment 56

I'm also amazed that money will be put into the building of treatment facilities when our groundwater clean-up committee has been told for the last three years that money is going to be cut from the budget for the clean-up of the already contaminated groundwater. The priorities very much concern me.

I would like to see money being spent to continue the clean-up of what's already there. When that is completed, an environmental impact report would be in order to then look at any further activities above ground involving hazardous wastes and the possible recontamination of the groundwater.

[1.f]

Response

DTSC does not have authority over DOE's budget allocation. However, it is DOE's responsibility to ensure that compliance with environmental statutory and regulatory requirements is maintained, or that funding be available, or to request supplemental funding from Congress, if necessary. DTSC believes that the new DWTF facility will provide a level of assurance against future contamination through more efficient waste management and stringent environmental controls on treatment.

Comment 57

Why are the budgets for clean-up decreasing instead of increasing?

[1.h]

Response

The funding is appropriated by Congress which sets national priorities for spending. Also, please see response to Comment 56. DTSC is seeking to assure that adequate site mitigation occurs from past contamination regardless of DOE's funding limitations. However, this is not within the scope of the permit decision as described in response to previous comments.

Comment 58

We have plutonium in the park. Tritium in rain water and our groundwater. Chromium, molybdenum and mercury in the soil. These toxic wastes, unfamiliar to most of we lay people are deadly, as you know. These things are silent, tasteless, colorless. Our children and our children's children, all of us are affected.

[1.h]

Response

The Permit is for the management of hazardous and mixed wastes. Since mixed waste contains radioactive and chemically hazardous components, a dual regulatory framework exists for mixed waste. USEPA or authorized states regulate the hazardous component. The US Nuclear Regulatory Commission (NRC), NRC-agreement states, or the DOE, regulates the radioactive component. DTSC is the lead regulatory agency for hazardous waste management in California and is authorized by the USEPA to administer California's hazardous waste management program, in lieu of the RCRA program over the hazardous components of mixed waste. NRC generally regulates the radioactive component at commercial and non-DOE/DOD federal facilities. Both DOD and DOE are self-regulating and each has its own orders which apply to the radioactive component at their respective sites and at their contractor sites.

Therefore, for mixed waste, LLNL is required to comply with the requirements of the Atomic Energy Act (AEA) and DOE directives and orders for the control of radioactivity and with the State hazardous waste management requirements with regard to hazardous waste safety. In other words, DTSC will be regulating only the chemically hazardous portions of the mixed waste while DOE will be regulating the radioactive portion. The requirements of RCRA or the State hazardous waste management requirements and AEA are generally consistent and compatible. However, the provisions in Section

1006(a) of RCRA allow the AEA to take precedence in the event provisions of requirements of the two acts are found to be inconsistent.

Since DTSC does not have regulatory authority over radioactive waste or the radioactive portion of mixed waste, DTSC cannot impose requirements, on the radioactive materials handled at LLNL. Nevertheless, the following from LLNL is being provided for clarification and information purposes.

LLNL has conducted an extensive radiological environmental monitoring program at the Laboratory and in the surrounding environment, including the City of Livermore for over 30 years. The results are documented each year in the Site Annual Environmental Report. The results of the environmental monitoring program show that the environmental impacts of LLNL operations are minimal and pose no threat to the public or the environment.

The Laboratory is required by federal law (40 CFR 61 Subpart H, otherwise known as NESHAPs) to limit the emission of radionuclides to ambient air to levels resulting in an annual effective dose equivalent (EDE) of 10 mrem to any member of the public. To determine compliance with NESHAPs, LLNL models releases of radionuclides based on the amounts used and radionuclide physical states, or maintains continuous monitoring equipment on facilities that handle radionuclides. LLNL also operates a series of air monitors at the perimeter of LLNL and at specific locations within the Laboratory. These monitors provide redundancy to measurements made at the continuously monitored facilities, and also facilitate quantification of any unplanned releases.

LLNL has operated under NESHAPs since 1991. In that time, the annual EDE to the hypothetical maximally exposed member of the public from all sources at LLNL has consistently been well below the NESHAPs standard. For example, in 1996, the EDE for the Livermore site, based on extremely conservative (worst-case) modeling assumptions, was 0.093 mrem, a value approximately 100-fold lower than the 10 mrem standard. Furthermore, the current International Council on Radiation Protection (ICRP) and National Council on Radiation Protection and Measurement (NCRP) radiation standards for the protection of the public are 100 mrem/y for prolonged exposure and 500 mrem/y for occasional exposure. A comparison of the 1996 EDE to any of the standards cited here demonstrates that radionuclide emissions from LLNL are well below a level of concern.

LLNL samples vegetation throughout the Livermore Valley, at the Livermore site, and at Site 300. LLNL measures the tritium in the water extracted from the plant using freeze-drying techniques. This is an appropriate measure of tritium in the plant because the organically bound fraction represents only a small portion of the total tritium in the plant, approximately 3% of the fresh plant material (Diabat and Strack, "Organically Bound Tritium," *Health Physics* 65:698-712, 1993). One estimate of the level of incorporation of tritium into the organically bound fraction of the plant is 0.2% of the initially absorbed tritium (Koranda and Martin, "The Movement of Tritium in Ecological Systems," in *Tritium*, A.A. Moghissi and M.W. Carter, Eds., Messenger Graphics, Phoenix, AZ, 1973). Another estimate is 0.3% (Diabat and Strack, 1993). Diabat and Strack also state "If the total deposition onto plants is taken to be <10% of the HTO [tritiated water] released from a stack (within 25 km from the release point), only 0.03% of the tritium initially released is seen to enter the OBT compartment."

At such low levels of incorporation into plants, it would be an unwarranted expenditure to quantify the amount of organically bound tritium in local vegetation. This is especially true because many of the samples have so little tritium that even the tritium in the water fraction cannot be measured above state-of-the-art detection limits. It is important to remember that LLNL's purpose is surveillance monitoring, and that should a significant tritium release occur, any effects would appear first and be the largest in the tissue free water fraction. Furthermore, LLNL continuously monitors all significant tritium emissions directly, where they occur, including monitoring in the stacks at the LLNL Tritium Facility (B-331).

In addition, the dose calculated for tritium in the tissue free water fraction in vegetation is based on the extremely conservative assumption that an adult's diet consists exclusively of vegetables with the measured tritium concentration, and meat and milk derived from livestock fed on grasses with the same concentration. These assumptions are conservative because most vegetables consumed by an adult will not contain tritium at the levels reported (the tritium levels will actually be much lower), nor will the livestock actually consume vegetation with the reported levels of tritium. Based on these conservative assumptions, the maximum potential dose (from ingestion of affected vegetation) for 1996 is 0.46 μ Sv (0.046 mrem) (Harrach et al., Environmental Report for 1996, UCRL-50027-96, Lawrence Livermore National Laboratory, Livermore, CA, 1997). Moreover, organically bound tritium is included in the measurements of tritium in wine, for which extremely low doses are also calculated.

The USEPA conducted sampling in September, 1993, at and around the Main Site to characterize plutonium levels in soil. Samples were taken within the Main Site for characterization; and at random offsite locations for determining background levels. One of the background locations chosen was Big Trees Park, half a mile away from the Main Site. The sampling revealed higher levels of plutonium in the soil at one location than would be expected as a result of global fallout. More samples were taken in January of 1995 by LLNL in accordance with a plan developed with, and under the oversight of the USEPA, DTSC's Site Mitigation Program, the RWQCB and the California DHS. This sampling event confirmed the original findings. The highest contamination level found in the park was well below USEPA's risk-based standards for residential areas.

To further characterize Big Trees Park and to see if the route(s) could be identified by which plutonium above background levels may have reached the park, in August 1998, LLNL voluntarily conducted additional sampling. The sampling was conducted in accordance with a sampling plan developed in conjunction with the USEPA, DTSC, RWQCB, DHS and the Agency for Toxic Substances and Disease Registry. The results of this sampling effort are not yet available.

For more information regarding the current activities on this matter, please call Mr. Bert Heffner at (925) 424-4026 of the Environmental Protection Department at LLNL. For more information on the soil contamination at the Big Trees Park, the commenter is referred to the fact sheet published by the USEPA dated September 1995.

In regards to chromium, molybdenum and mercury in the soil, as mentioned in response to Comment 51, the clean up of the soil under CERCLA is currently being overseen by DTSC's Site Mitigation Branch (SMB). Therefore, DTSC is fully aware of the existing contaminated soil at the site and will

continue to oversee LLNL's cleanup activities to ensure that appropriate remedial action is taken as necessary to protect public health and the environment.

Comment 59

Recent excavation at LLNL's National Ignition Facility (NIF) construction site has uncovered unauthorized toxic waste dumping. In Sept., 1997, construction crews excavating earth at LLNL's NIF construction site ran into what appears to be an unauthorized "dumping ground." Excavated to date are over 100 capacitors (reportedly from earlier fusion programs), with many leaking highly toxic PCBs, 75 crushed waste drums marked "radioactive," and contaminated soil (37 truckloads have already been sent to a Utah disposal site). This discovery raises serious questions about LLNL's past hazardous waste practices. Under the federal Resource Conservation and Recovery Act, which DTSC is authorized to implement in California, DTSC should require a comprehensive RCRA Facility Assessment (RFA) to identify the NIF "burial" site's areas of concern before proceeding any further with the DWTF permitting process. This RFA should augment other applicable state and federal regulations, and, we believe could be incorporated into the EIR on the overall site. Additionally, we are concerned that the proposed site for DWTF may also sit on top of unauthorized buried waste because it abuts the north side of the NIF construction site.

[12]

Response

Please see the response to Comment 53 which discusses how the excavated capacitors were addressed and its relation to the potential for finding additional buried hazardous, toxic, and/or radioactive materials at the DWTF location.

Comment 60

For years, LLNL's groundwater has been contaminated. Although steps have been taken to monitor, control and remedy it, this environmental threat still persists. Some examples include: 1) earlier this year, LLNL found its storm drains embedded with large amounts of mercury -- an extremely toxic material- The drains may have contributed mercury-laden runoff to the already-contaminated groundwater, as well as to surface water and to soil; 2) LLNL has acknowledged that there's a possibility that they will run into contaminated groundwater while excavating the NIF site (they've applied for a dewatering permit to pump the area dry, if necessary); and 3) at LLNL's Site 300 weapons testing station (located midway between Livermore and Tracy), during 1982-83 (and possibly again in 1996), groundwater rose, saturating waste buried in disposal pits, and then receded, thus contaminating groundwater at deeper levels.

[12]

Response

Remedial actions are currently being pursued under CERCLA to ensure that LLNL meets the objectives of the Federal Facility Agreement (FFA) which is to thoroughly investigate and to take appropriate remedial action as necessary to protect the public health and welfare and the environment. Please see response to Comment 54 for a listing of objectives under the FFA, the status of the mercury found in the storm drains and the possibility of encountering contaminated groundwater at the NIF construction site.

Comment 61

And you're the agency that can put a stop to it, make it -- make them clean up the mess they already have and keep them from making the mess worse.

[1.h]

Response

None of the hazardous waste management operations proposed for continued operation, since it has been allowed to operate under interim status, have been identified as contamination sources under CERCLA investigation and cleanup activities at the site. These activities are in response to historic laboratory materials releases and disposal. Such cleanup activities are symptomatic of older industrial plants and DOE facilities throughout the country and the practices that caused the releases pre-dated many of the current environmental laws. The cleanup of historical soil and groundwater contamination is already being pursued by U.S. EPA in close coordination and cooperation with DTSC and the RWQCB. The DTSC Site Mitigation Program, therefore, takes part in overseeing all cleanup activities to ensure that all remedial actions are implemented to prevent, mitigate, or abate the release or threatened release of hazardous substances, pollutants or contaminants at the Main Site in accordance with CERCLA. In addition, DTSC's issuance of a Hazardous Waste Facility Permit would ensure that new releases are prevented or are properly mitigated.

HISTORY OF PROBLEMS

Comment 62

I don't think that you are ignorant of all of the problems that have been going on for many of the years at the Lab in terms of violations of permits and discharges and accidents. Also, because the Lab is a Superfund site, it is highly contaminated. This brings reasonable questions as to what's gone on out there as far as all the ways they've handled hazardous wastes, mixed wastes and radioactive wastes. How in the world DTSC could come up with a Negative Declaration, not even a mitigated Negative Declaration, but just a Negative Declaration, that is quite amazing to me.

[1.b]

Response

The scope of the Initial Study is limited to the activities described under the proposed Project which is for the continued operations at Area 612 and Building 693 and new operations at Building 280 and the DWTF. The Negative Declaration is based only on the hazardous waste activities associated with the areas and/or buildings mentioned above and not all lab operations. DTSC also does not have jurisdiction over the management of radioactive waste as explained in response to Comment 58.

DTSC is knowledgeable about prior problems which have occurred at LLNL in terms of compliance with permits, discharges, accidents and contamination. Based on this knowledge, the Initial Study, and hazard analyses performed by LLNL (see response to Comment 35), DTSC has concluded that these prior problems do not support a fair argument that significant impacts to the environment may occur from the permitting of the specific hazardous waste management facilities covered by the Part B Permit Application. Consequently, a Negative Declaration is appropriate. A Mitigated Negative Declaration is not appropriate for the reasons discussed in the response to Comment 18.

DTSC has been conducting annual inspections of LLNL's hazardous waste management facilities since 1984. Violations of LLNL's Interim Status Document which were detected between 1989 and 1992 resulted in a settlement agreement requiring LLNL to pay \$140,000 in administrative costs. Subsequent inspections were conducted during 1993, 1994, 1996, and 1997, but none resulted in findings deserving of fines or penalties. Violations were found in 1993 and 1994, but none were considered Class 1 or major violations. No violations were noted in 1996. In 1997, three minor violations were cited. These have been corrected. Please see the response to comment 73 for a discussion of LLNL's compliance history.

LLNL's sewer discharge limits are enforced by the City of Livermore Water Reclamation Plant (LWRP). DTSC has reviewed a LWRP summary of all wastewater discharge violations by LLNL between 1984 and 1997. The LWRP concluded that there was no indication that any of the violations found between 1984 to 1997 were caused or contributed to by waste treatment activities. The results of DTSC's review of the information provided by LWRP are discussed in detail in the response to

Comment 76. In summary, this review shows that actions taken by LLNL in 1997 and 1998 should be effective in preventing the reoccurrence of past problems. Except for the month of January, no other NOV's of sewer discharge limits were issued in 1998. Additionally, it is significant to note that LWRP expressed their support for approval of the Part B Permit Application since it would allow for use of improved treatment technologies that should result in reduced pollutant discharges from the waste treatment area.

Accidents that involve the management of hazardous and/or mixed waste include the July 2, 1997, shredder incident and the July 2, 1997, bulking incident. The results of DTSC's investigations into these accidents are discussed in detail in the responses to Comments 64 and 66. In summary, DTSC is satisfied that corrective actions taken as the result of these accidents should be effective in preventing reoccurrences in the future.

LLNL became a Superfund site in July 1987 due to the release or disposal of hazardous waste onto ground prior to the enactment of the Resource Conservation and Recovery Act of 1976 (RCRA). Such releases or disposal practices are now prohibited by law and are no longer being conducted at LLNL. In June 1992, the United States Department of Energy (DOE) signed a Federal Facility Agreement (FFA) applicable to LLNL under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) with the United States Environmental Protection Agency, the California Department of Toxic Substances Control, and the San Francisco Bay Regional Water Quality Control Board. The cleanup of past contamination under the FFA is being overseen by the Site Mitigation Program of DTSC. Investigations into sources of groundwater contamination have been on-going since the mid 1980's and are documented in numerous reports issued as part of the CERCLA work. The FFA provides DTSC with an enforcement mechanism that enables DTSC to ensure that these areas of past contamination are cleaned up to levels that are protective of human health and the environment. The past contamination has not been attributed to any existing hazardous waste management operations at the site. Current interim status hazardous waste management activities are being conducted according to stringent regulatory requirements that minimize the potential for future contamination from these activities. The hazardous waste activities which are covered by the Part B Permit Application will be subject to similar requirements. In the event that future contamination does occur from one or more of the permitted activities, the permit expressly requires LLNL to report the contamination to DTSC and carry out corrective action under the FFA. Thus, the permit expressly provides an enforcement mechanism that enables DTSC to ensure that any areas of future contamination are cleaned up to levels that are protective of human health and the environment.

Comment 63

The IS concludes that the proposed project COULD NOT have a significant impact on the environment. This is a challengeable conclusion. since, as discussed previously, LLNL is a highly-contaminated Superfund site with an ongoing history of accidents, pollution and unauthorized dumping of hazardous waste (done under DTSC's "Interim Status" authorization), raising reasonable questions

about the proposed project's future impacts to the environment since it would basically duplicate waste processes currently done under the Interim Status authorization.

[1.b, 12]

Response

None of the hazardous waste management activities of the facility, since it has been allowed to operate under interim status, have been identified as a source of the contamination referred to by the commenter. As stated in the response to Comment 62, LLNL became a Superfund site in July 1987 due to the release or disposal of hazardous waste onto ground prior to the enactment of the Resource Conservation and Recovery Act of 1976 (RCRA). Such releases and disposal are now prohibited by law and are no longer being conducted at LLNL. The contamination from the past releases and disposal is being investigated and cleaned up under CERCLA. The contamination resulted from historic laboratory materials releases and disposal. It would be inappropriate to link these releases and disposal to the permit for hazardous waste management activities since they did not result from these activities. Additionally, the hazardous waste activities which are covered by the Part B Permit Application will be conducted according to stringent regulatory requirements that minimize the potential for future contamination from these activities. Furthermore, in the event that future contamination does occur from one or more of the permitted activities, the permit expressly requires LLNL to report the contamination to DTSC and carry out corrective action. Thus, the permit expressly provides an enforcement mechanism that enables DTSC to ensure that any areas of future contamination are expeditiously cleaned up to levels that are protective of human health and the environment. Based on the above, DTSC concludes that the fact that the site is a Superfund site does not support a fair argument that significant impacts to the environment may occur from the permitting of the specific hazardous waste management facilities covered by the Part B Permit Application.

As explained in response to Comment 62, DTSC is knowledgeable about prior problems which have occurred at LLNL in terms of compliance with permits, discharges, accidents and contamination. DTSC's evaluation of these problems is summarized in its response to Comments 62, 64, 66, 67, 72 and 73. Based on this evaluation, the safety features and procedures for the HWM facilities described in the response to Comment 67, the Initial Study, and hazard analyses performed by LLNL (see response to Comment 35), DTSC has concluded that these prior problems do not support a fair argument that significant impacts to the environment may occur from the permitting of the specific hazardous waste management facilities covered by the Part B Permit Application.

Comment 64

The Lab also has a history of frequent accidents of all kinds right up to the present, and some involving hazardous waste and materials.

In 1990 there was an accident when tritium, radioactive hydrogen, spilled out of a tank at the Lab's Building 292 resulting in soil and groundwater contamination.

To look at just this year for a moment, in February we discovered that Livermore Lab doctors had cut a chunk of plutonium-contaminated tissue out of an employee's thumb after that worker had accidentally stuck himself with a sliver of radioactive plutonium during routine clean-up.

The next month, March, we found out that three Livermore Lab workers were contaminated when uranium filings caught fire. Uranium filing fires are all too common at Livermore.

Next month, in April, it got reported that earlier in the year there was a chlorine gas leak at Livermore Lab that forced about 20 workers to flee after an alarm sounded.

The following month, May, was when the City of Livermore cited the Lab again for chronic discharges of heavy metals and corrosive chemicals.

Then the next month, in June, it was reported that the previous month two workers had become contaminated with tritium while packaging the radioactive waste in Building 331, the tritium facility.

Then, on July 2nd, workers shredding used air filters at the Lab were radioactively contaminated. One worker was particularly horrifically contaminated with curium, an alpha emitter, which he got on his chest, face and in his nostrils. And a Department of Energy report, which you have received recently, blamed inadequate safety procedures for this accident.

And bulking procedures. Another accident, which I forgot to mention on my list, that happened recently was 25 employees, I believe it was, were evacuated when reddish fumes filled the room when they were bulking wastes. They had mixed together two incompatible wastes.

One thing I want to point out here, though, very clearly, is that this is a facility that was merely going to be moved and would have been permitted by you folks without any major changes. And, again, you know, the idea that there could be no "significant" impact is -- would be laughable if it wasn't serious. We're seeing significant impact every single month. These impacts are significant.

[1.a]

Response

DTSC has considered the specific accidents referenced in this comment. When viewed in light of the facts of these accidents, the Initial Study, and hazard analyses performed by LLNL (See response to Comment 35), DTSC concludes that these accidents do not support a fair argument that significant impacts to the environment may occur from the permitting of the specific hazardous waste management facilities covered by the Part B Permit Application.

The results of DTSC's evaluation of each of the occurrences mentioned by the commenter are summarized below:

a. 1990 Tritium Spill at Building 292

The spill did not occur in any of the facilities to be permitted. Nor did it occur in any of the hazardous waste facilities that are authorized to operate under the DTSC grant of interim status. The source of the spill was a leaky underground storage tank that had been identified as such and taken out of service, but not disconnected from the influent piping. The cause of the spill was a frozen water pipe that broke and allowed clean water to flow into the floor drains and discharge into the leaky tank. The facilities to be permitted do not contain any underground storage tanks.

The UST system at Building 292 was tested for leak tightness in July 1989. The tank system consisted of one single-walled, 1,000 gallon pre-cast reinforced concrete UST and associated underground piping that is fed by floor drains inside Building 292. The leak tightness test failed and the tank was immediately taken out of service. While in service, the tank was used to collect rinsewater in Building 292. The rinsewater in Building 292 contained tritium and some metal, had characteristic pH that ranged between approximately 6 to 10, and usually met sanitary discharge levels. The contaminant levels in the rinsewater have never exceeded hazardous waste levels but on occasion the radioactive waste levels have exceeded DOE permitted sanitary sewer discharge levels. Therefore, the 292 UST tritium leak did not involve hazardous or mixed waste. It involved radioactive waste only.

Soil samples were collected from boreholes in the areas around the UST September 1989. Soil sample analyses indicated elevated tritium concentrations. To evaluate the potential impact of the tritiated rinsewater release on groundwater, LLNL's Environmental Restoration Division (ERD) monitored tritium activities in the unsaturated and saturated zones of the Building 292 Area starting in 1989. Monitoring is presently conducted and will continue into the future. The CERCLA ROD for the clean up of Main Site calls for a "leave-in-place" remediation strategy for soil contaminated with tritium (i.e., self-remediation via radioactive decay; the half-life of tritium is 12.3 years). Therefore, in 1995, the Building 292 UST was closed in place by sealing it with concrete.

In 1992, LLNL began to upgrade or close waste retention tanks (for non-hazardous, hazardous, mixed, and radioactive waste) and hazardous product tanks (for petroleum products) in accordance with existing local, state and federal regulations, or to decrease the potential for environmental contamination as the result of a release from a tank or its appurtenances. Work was completed in 1997 to bring LLNL into compliance with state and federal requirements for underground storage tanks, one year ahead of the 1998 deadline.

As of 1996, the LLNL Tank Upgrade Project has replaced all single-walled hazardous waste and hazardous product USTs with secondarily contained tanks that have continuous leak detection or double-walled aboveground tanks. Therefore, tank integrity testing for USTs at the LLNL site is no longer required.

b. February 1997 Wound Contamination of Worker in Building 322

The wound contamination did not occur in any of the facilities to be permitted. Nor did it occur in any of the hazardous waste facilities that are authorized to operate under the DTSC grant of interim status. The incident occurred during routine glovebox operations. Although the direct cause of the incident was attributed to the inattention of the handler to the presence of sharp pieces in the work place, other causes were also evaluated such as deficient housekeeping, work practices, and training. As a result, the causes of this incident were discussed with all plutonium handlers shortly after the incident and a sharp hazards control procedure was written to be included in all Operational Safety Procedures (OSPs). The training course PU4001, Glovebox Practical, was also modified to include more detailed training on the handling of sharp objects. These Operational Safety Procedures (OSPs) and training course are applicable to work conducted inside the HWM Facilities.

c. March 1997 Uranium Filings Fire in Building 321

LLNL records show that the fire occurred in February 1997. The fire did not occur in any of the facilities to be permitted. Nor did it occur in any of the hazardous waste facilities that are authorized to operate under the DTSC grant of interim status. The fire did not involve hazardous waste or radioactive waste. The fire occurred in a radioactive materials enclosure. The specific operation that caused the fire was the hand filing of a radioactive part. Handfiling and other operations typically associated with a machine shop are not authorized within the facilities to be permitted.

d. January 1997 Chlorine Gas Leak in Building 153

The gas leak did not occur in any of the hazardous waste facilities that are authorized to operate under the DTSC grant of interim status. The leak did not involve hazardous waste or radioactive waste. The leak resulted from a defective or failed regulator located in a gas cabinet inside the gas vault. The installed emergency system operated automatically to stop the source of chlorine. No one was injured. The defective part that caused the leak was immediately fixed.

e. May 1997 City of Livermore Citation for Discharges of Heavy Metals and Corrosive Chemicals

LLNL's sewer discharge limits are enforced by the City of Livermore Water Reclamation Plant (LWRP). DTSC has reviewed a LWRP summary of all wastewater discharge

violations by LLNL between 1984 and 1997. No Notice of Violation (NOV) was issued in May 1997 for discharges of heavy metals and corrosive chemicals. However, there was an NOV issued on March 31, 1997 for a silver exceedance violation. Since subsequent samples showed a return to compliance, no further actions were required by the LWRP to address the silver exceedance. The LWRP concluded that there was no indication that any of the violations found between 1993 to 1997 were caused or contributed to by waste treatment activities. The results of DTSC's review of the information provided by LWRP are discussed in detail in the response to Comment 76. In summary, this review shows that actions taken by LLNL in 1997 and 1998 should be effective in preventing the reoccurrence of past problems. Except for the month of January, no other NOVs of sewer discharge limits were issued in 1998. Additionally, it is significant to note that LWRP expressed their support for approval of the Part B Permit Application since it would allow for use of improved treatment technologies that should result in reduced pollutant discharges from the waste treatment area.

f. May 1997 Skin Contamination in Building 331

The skin contamination did not occur in any of the facilities to be permitted. Nor did it occur in any of the hazardous waste facilities that are authorized to operate under the DTSC grant of interim status. The fire did not involve hazardous waste, but did involve the packaging of radioactive waste. The direct cause of the skin contamination was that the worker failed to notice that, as a result of reaching/stretching his arms to pick up the contaminated items, his forearms had become exposed. Immediate actions taken following this incident were adequate. The employee changed clothes and was decontaminated using soap and water. No measurable employee dose or environmental release occurred.

The root cause of this incident was that the Personal Protective Equipment (PPE) requirements detailed for this operation did not specifically state that glove liners or other PPE which would cover the forearm areas of the workers were to be worn during this operation. Corrective actions taken as a result of this incident included briefing tritium workers on the appropriate use of PPE for future operations and explicitly calling-out of PPE for operations which involve reaching and/or stretching into hoods, pass-throughs, or other highly contaminated areas where worker's arms could become exposed. These corrective actions should reduce the risk of future contamination.

g. July 1997 Shredder Incident

This incident occurred inside an interim status management unit during the shredding of radioactively contaminated HEPA filters. The radiological safety aspects of this occurrence fall under DOE jurisdiction. The results of the DOE investigations of this occurrence are summarized in the response to Comment 66. Because this event occurred inside an interim status management unit, DTSC also investigated the waste management practices associated with operations inside the unit. As a result of its investigation, DTSC

made changes to sections of the Part B Permit Application pertaining to the training plan, waste analysis plan, inspection procedures and emergency notification procedures to which LLNL will be subject under its Hazardous Waste Facility Permit. DTSC believes that these changes should prevent the reoccurrence of the incident. Also, please see response to Comment 66.

The shredder involved in this occurrence has been taken out of service because it was heavily contaminated with radioactivity. A new shredder will be installed in Building 695 as part of the Project. The new shredder will be designed according to the standards described in Volume 11, Appendix XIV.4-H of the Permit Application. DTSC has reviewed this design and finds it to be acceptable for size reducing debris such as cloth, paper, cardboard, and other fibrous materials. However, shredding HEPA filters shall not be authorized under the Permit.

h. July 1997 Bulking Incident in Building 153

A chemical reaction occurred when two incompatible materials (a strong acid and an organic material) were mixed together by a hazardous waste handling technician during waste consolidation at a satellite accumulation area. The chemical reaction produced oxides of nitrogen which activated building alarms. The building was immediately evacuated and the LLNL Fire Department was notified. The Fire Department stabilized the situation and the workers returned to work approximately two hours later. There were no injuries. As a result of this occurrence, LLNL modified its waste handling procedures at generator areas to ensure that a chemist reviews all liquid consolidations before they are conducted to determine if the material is safe to combine.

DTSC's investigation of this occurrence found contributing factors similar to those identified in DTSC's investigation of the shredder incident. DTSC has concluded that changes made to the Permit Application as a result of the shredder incident should also be effective in preventing a reoccurrence of this other incident. Also, please see response to Comment 66.

Comment 65

What you're hearing from me is concern about two very important things. One here is the facilities themselves. The second is the whole plethora of safety procedures that are missing. And the combination of poor safety procedures and practice along with inadequate facilities means more and continuing accidents.

[1.a]

Response

DTSC is responsible for ensuring that hazardous waste facilities are constructed and operated in accordance with strict regulatory standards to protect public health, safety and the environment. DTSC accomplishes this by requiring the facility to submit a Permit Application which is reviewed for compliance with these standards. DTSC has evaluated the design specifications, safety and operating procedures described and referenced in LLNL's Permit Application. As a result of this review, DTSC made changes to the Permit Application by providing more information on Safety Analysis Reports, Facility Safety Procedures, Technical Safety Requirements, Single Container Inventory Limit program, Operational Safety Procedures, and certain waste management practices and administrative procedures. In addition to the actions taken as a result of the occurrences discussed in the response to Comment 64 above, DTSC finds that the construction of new DWTF units and implementation of the safety and operating procedures as described in LLNL's Permit Application will help prevent the occurrence of accidents involving hazardous or mixed wastes.

Comment 66

Lawrence Livermore Lab should not be issued a Permit without DTSC's thorough investigation into the Lab's accidents and safety procedures because of recent personnel contamination accidents at Lawrence Livermore Lab.

[1.c]

Response

On July 2, 1997, an incident occurred at the Main Site in which, while shredding low-level radioactive and mixed legacy wastes, a loss of radiological containment occurred. This loss of containment resulted in workers being contaminated with radioactive materials. The radiological safety aspects of this occurrence fall under DOE jurisdiction. In response to this occurrence, DOE initiated two separate investigations into the accident. These investigations identified the root and contributing causes of the accident. Based on its investigations, DOE identified managerial controls and safety measures necessary to prevent or mitigate the probability of a reoccurrence. DOE directed LLNL to identify and take appropriate corrective actions. LLNL identified 51 corrective actions. DOE reviewed the corrective actions which LLNL identified and determined that they would be adequate, if properly implemented. LLNL advised DOE that the corrective actions had been completed by December 1998. On March 11, 1999, the DOE Oakland Operations Office completed its validation of LLNL's corrective actions. DOE has determined that LLNL's corrective actions have adequately met the intent of the Judgements of Need identified in the Type B Accident Investigation and has granted closure of the Corrective Action Plan.

As noted above, the radiological safety aspects of this occurrence are not within the scope of DTSC's jurisdiction. However, because this event occurred inside an interim status management unit, DTSC

also investigated the waste management practices associated with operations inside the unit. As a result of its investigation, DTSC made changes to sections of the Permit Application pertaining to the training plan, waste analysis plan, inspection procedures and emergency notification procedures to which LLNL will be subject under its Hazardous Waste Facility Permit. Specifically, Permit Section IV.5 was revised to provide more details on how the Waste Analysis Plan should be implemented and Permit Sections IV.13 and IV.17 were added to clarify notification and emergency procedures. DTSC believes that these changes should prevent the reoccurrence of the incident.

Additionally, DTSC conducted an investigation of another incident that occurred at LLNL on July 2, 1997. This incident involved the evacuation of LLNL employees as a result of the mixing of incompatible waste chemicals - nitric acid and hydrofluoric acid/alcohol. The results of LLNL's investigation into this occurrence and actions initiated by LLNL to prevent similar occurrences in the future are summarized in the response to Comment 64. DTSC's investigation found that inadequate waste characterization was a contributing factor similar to the one identified in DTSC's investigation of the shredder incident. Therefore, DTSC concludes that changes made to the Permit Application as a result of the shredder incident should also be effective in preventing a reoccurrence of this other incident.

Comment 67

One of the things that caught my attention in the monthly newsletter that Tri-Valley CAREs puts out that wasn't mentioned is about an accident in May of this year at the Lab's Uranium Atomic Vapor Laser Isotope Separation Project, otherwise known as AVLIS. There was a four-hour long evacuation of 100 workers, as well as the loss of 12 lasers costing \$400,000 in damages. This mishap resulted from several factors: inadequate training, poor interdepartmental communication, no back-up cooling system, no warning signs posted and confusion over inter-lab responsibilities. These factors led a mechanic to mistakenly close a cooling-water valve causing a water back-up into AVLIS which, as the hot lasers boiled off the water, popped their hoses and melted plastic and fiberglass parts, produced flooding, steam and a cloud of smoke.

These are the same people you want to give permission on a permanent basis to continue with this mess. And there have been three other AVLIS accidents involving cooling water. Two in the past year and a third a couple of years ago.

[1.h]

Response

Regulation of AVLIS program activities is outside the jurisdiction of DTSC. The AVLIS accident did not occur in any of the HWM units regulated by DTSC under the Interim Status Document or to be regulated by DTSC under the Permit.

The activities regulated by DTSC are for the storage and treatment of hazardous and mixed waste in hazardous waste management units identified as the DWTF, Building 280, Area 612 and Building 693. Due to the potential hazards posed by waste management activities, DTSC considered factors such as training, management practices, back-up systems, and responsibilities in its permit decision. DTSC requires all HWM personnel to follow a training plan that meets the requirements specified in Title 22, California Code of Regulations. As a result of DTSC's investigation of the July 1997 shredder incident, the Training Plan was reviewed and revised where appropriate to (1) ensure that it provides specific programs for various HWM Division positions and other facility personnel, (2) ensure that personnel complete their training programs within six months of assignment to a new position at LLNL, (3) provide annual performance reviews, (4) ensure that the HWM training program is directed by personnel who are trained in hazardous waste management procedures and (5) provide training that ensures that LLNL personnel understand their responsibilities and are able to respond effectively to emergencies.

There is limited personnel access to all waste management units. This is accomplished by locating all waste management units inside the perimeter fence and having either the secure side of a building or an 8-ft chain-link fence as the outer boundary, preventing unauthorized entry. A key or a lock combination is required to enter the active portion of any of the waste management buildings or areas. Keys or lock combinations are issued only to personnel with a need for entry and who are appropriately trained in hazardous and mixed waste management procedures. The keys are administratively controlled by Hazardous Waste Management Division personnel.

As a result of DTSC's review of LLNL operating procedures listed in the Permit Application, revisions to certain management practices and administrative procedures were made in LLNL's Part B application to ensure safe hazardous waste operations. For example, HWM Division personnel are required to be present for all waste management activities during operating hours. All activities are conducted with the knowledge of the appropriate supervisor. Personnel must have the required training prior to handling waste containers or conducting waste treatment operations. Process controls and safety interlocks, such as high-level alarms and automatic shutoff valves, are provided on tanks systems and treatment equipment to prevent overfilling and to alert operators of abnormal conditions. Waste-specific waste processing plans are prepared by a qualified process engineer or chemist to prevent the occurrence of adverse reactions and the generation of gases and vapors at toxic concentrations. Inspections are conducted to verify that building areas, containers, tanks, and treatment equipment are in good condition and free of leaks and spills. A pre-operational inspection is conducted prior to operating the treatment equipment. A preventive maintenance program is established to ensure that parts subject to deterioration are replaced to minimize the potential for failures that may lead to leaks or other releases. These preventative maintenance items include, but are not limited to, replacing valve packings, flange gaskets, and pump seals. Treatment processes found to be leaking or to be in an unsafe condition are not operated until the appropriate repairs are complete. Maintenance activities are documented and retained on file.

Also, design and safety features have been incorporated into the project to reduce the potential of an accident from occurring and thereby reducing the potential risks. Such design and safety features

include bermed containment areas, fire protection systems, fire alarms and communication systems, HEPA-filtered local ventilation systems, scrubber off-gas systems, automated chemical reagent delivery systems, personal protective equipment including respirators and protective clothing, building construction based on structural specifications and safety design, use of closed waste containers, electric interlocks, emergency shut-off controls, fenced areas equipped with gates that are kept locked and barriers and signs to alert personnel to hazards. LLNL will also use administrative controls including radiation monitoring systems, pre-operational inspections of treatment systems, review of waste treatment plans by qualified personnel prior to treatment, personnel training and adherence to operating procedures. LLNL is also required to maintain a Contingency Plan that establishes individual responsibilities during emergencies and provides procedures for responding to fires, spills, earthquakes, and equipment failure.

LLNL HWM Facility design features, engineering controls, administrative procedures and proposed operational controls described in the Part B Permit Application include those necessary to meet design, administrative and operational criteria independently required by DOE. The DOE criteria are developed through a formal hazard analysis report process prescribed by DOE orders and standards. DTSC has reviewed this process and concluded that LLNL's operating in conformance with the DOE criteria will ensure the risk of upset is insignificant, even when factors such as those discussed above, which could reduce the consequences of a release even further, do not work as planned. Consequently, when these items do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant (see response to Comment 35).

Comment 68

Livermore Lab has a long history of spills, accidents, airborne pollution, groundwater contamination (LLNL is a Superfund site), violations of environmental laws and last month's discovery of unauthorized buried hazardous waste at the NIF construction site, all of which raise serious questions about Lab practices which must be dealt with by DTSC before making any decision.

[6]

Response

Please see response to Comment 52 which explains how DTSC considered LLNL's historical waste management practices and current CERCLA activities in its permit decision. See response to Comment 53 regarding DTSC's discussion of the PCB removal action at the NIF construction site and its potential impacts at the proposed DWTF site. Also, please see response to Comment 62 regarding a discussion of LLNL's compliance history.

Comment 69

I strongly urge the State Dept. of Toxic Substances Control not to issue a permit for the Lawrence Livermore National Lab to operate a Waste Treatment and Storage Facility. LLNL has a poor record of disposal and management of toxic wastes, and there has been little or no incentive to reduce the wastestream which continues to worsen the problem.

[5]

Response

Please see response to Comment 52 which explains how DTSC considered LLNL's historical waste management practices and current CERCLA activities in its permit decision. See response to Comment 53 regarding DTSC's discussion of the PCB removal action at the NIF construction site and its potential impacts at the proposed DWTF site. Also, please see response to Comment 62 regarding a discussion of LLNL's compliance history. In regards to source reduction, LLNL has been conducting pollution prevention activities since 1990. As a result of LLNL's Pollution Prevention Program, the trend since 1990 has been a significant reduction in waste generation (see response to Comment 108).

Comment 70

Only last summer, four LLNL employees were contaminated by radiation when shredding used air filters. Upon investigation, it was discovered that a number of safety procedures had not been followed.

[11]

Response

Please see response to Comment 66.

Comment 71

LLNL has a history of frequent accidents right up to the present. This history includes a 1990 accident when tritium (radioactive hydrogen) spilled out of a tank at LLNL's Building 292, resulting in soil and groundwater contamination. Examples of onsite accidents reported just of 1997 include: February -- LLNL doctors cut a small chunk of plutonium-contaminated tissue out of an employee's thumb after the worker had accidentally stuck himself with a sliver of the radioactive metal during routine cleanup. March -- Three LLNL workers were contaminated recently when uranium filings caught fire. April -- It was reported that earlier this year, a chlorine gas leak forced about 20 workers to flee after an alarm

sounded. May -- The City of Livermore cited LLNL, again, for chronic discharges of heavy metals and corrosive chemicals. Since January, 1996, LLNL has violated its permit discharge limits about once a month. June -- It was reported that in May, '97, two workers were contaminated with tritium (radioactive hydrogen) while packaging the radioactive waste in the Tritium Facility. July -- on July 2, workers shredding used air filters were radioactively contaminated. One worker was contaminated with curium, an alpha emitter, on his chest, face and in his nostrils. A DOE report credited inadequate safety procedures for this accident. Another July, '97 accident (a hazardous waste technician accidentally mixed nitric acid and alcohol while workers were "bulking," i.e., pouring spent chemicals to waste drums; this combination of chemicals could cause fire, explosion or fumes), resulted in fumes that triggered alarms and caused 25 workers to evacuate and LLNL to suspend "bulking" for a week. Certainly, it is reasonable that LLNL should not be issued a permit without DTSC's thorough investigation into LLNL's accidents and safety procedures, and , again, the appropriate vehicle is an EIR.

[12]

Response

LLNL's history of accidents and spills is addressed in the response to Comment 64. During the term of the Permit, DTSC will inspect LLNL for compliance with the applicable hazardous waste regulations and terms and conditions of its Permit. The Permit would provide for greater oversight of the operations at the Main Site, as compared to the existing Interim Status Document, due to increased specificity in the permit and the Permit Application.

The July 2, 1997 accident is discussed in the response to Comment 66. As indicated therein, both DOE and DTSC investigated the accident, identified the root and contributing causes and initiated actions necessary to prevent or mitigate the probability of a reoccurrence.

The EIR process is a planning process and is not intended to ensure compliance with safety procedures. DTSC does not "informally advise LLNL" to ensure compliance with safety procedures. DTSC ensures compliance through the formal legal mechanisms set forth in Health and Safety Code, Division 20, Chapter 6.5, Article 8 and 22 CCR, Division 4.5, Chapter 22, Articles 1-3.

Comment 72

LLNL has a history of noncompliance with safety procedures. On July 2, 1997, a worker at LLNL was radioactively contaminated with curium in an accident that DOE itself admitted was due to inadequate safety procedures. Also, in this instance, procedures that had been recently put into place with DTSC's guidance were apparently ignored by LLNL, which raises questions about whether LLNL really follows agreed-upon safety procedures. This is underscored by another recent LLNL report (see attached report, "Incident Analysis of Criticality Safety Control Infractions in Building 332") confirming that a total of 15 criticality violations (a "criticality accident" is a runaway nuclear chain

reaction) occurred over a two-month period (mid-May, '97 to mid-July, '97) in LLNL's plutonium building (Building 332) -- where, again, safety procedures were ignored. This internal LLNL report reveals deep, pervasive, systemic deficiencies in management, worker understanding and employee attitudes, citing 1) inadequate training, with workers unaware of rules and some even stating that there is nothing wrong with violating rules to get a job done; and 2) ineffective management, with supervisors not recognizing the problem. It is therefore reasonable that DTSC should not rely on informally advising LLNL re: safety procedures, but should use formal processes (such as an EIR) to ensure LLNL's compliance with safety procedures. Moreover, Tri-Valley CAREs has an information request into DOE regarding a subsequent criticality violation. We have been told that report is in draft, and is not yet publicly available. Again, this underscores the systemic nature of the problem.

[12]

Response

The July 2, 1997 accident is discussed in the responses to Comments 64, 66 and 87. As indicated therein, both DOE and DTSC investigated the accident, identified the root and contributing causes and initiated actions necessary to prevent or mitigate the probability of a reoccurrence.

In regards to criticality violations, DOE is the lead agency enforcing management of radioactive materials. Additionally, Building 332 is not one of the facilities to be permitted by DTSC. In July 1997, the facility was placed on a stand-by status because of concerns to DOE involving safety procedures, some of which were related to criticality safety. Since that time, procedures governing the handling of radioactive materials have been reviewed and revised, and the facility is being returned to normal operations. The Defense Nuclear Facility Board, an independent entity established by Congress to advise DOE regarding the safe handling of radioactive materials, has played an active role in returning Building 332 to normal operating status. DOE expects to complete this process within the next few months under the supervision of DOE's Oakland Operations Office and supported by elements from DOE Headquarters. Any concerns or questions related to Building 332 or to safe handling of radioactive materials should be directed to DOE.

The EIR process is a planning process and is not intended to ensure compliance with safety procedures. DTSC does not "informally advise LLNL" to ensure compliance with safety procedures. DTSC ensures compliance through the formal legal mechanisms set forth in Health and Safety Code, Division 20, Chapter 6.5, Article 8 and 22 CCR, Division 4.5, Chapter 22, Articles 1-3.

Comment 73

LLNL has a history of receiving Notices of Deficiency and Notices of Violations from DTSC, right up to the present, as seen in the following:

- a. A May 21, 1997 letter from Rick Robison, Unit Chief of DTSC's Statewide Compliance Division to Harry Galles, Head of LLNL's Environmental Protection Dept., cites the following combined waste (CW) violations: 1) possible hazardous & radioactive constituents of CW remaining onsite weren't identified; 2) waste generating processes for wastes inspected were not identified; 3) accumulation start dates of CW were not listed at Satellite Accumulation Areas; 4) the treatment process description, as well as the reason for the treatment, for CW that was treated and then sewerred was not provided, nor was information provided regarding the disposition of the sludge produced by the treatment process; 5) a date of treatment was not provided; 6) no information was provided for attempts to find available treatment and/or disposal options for CW; 7) no manifest number was given for CW shipped offsite.
- b. A May 23, 1997 Inspection Report by Barbara Barry, Hazardous Substances Scientist with DTSC's Statewide Compliance Division, refers to the May 23, 1993 Stipulation and Order #HWCA 93/94-047 signed by DTSC and LLNL for the latter's violations of the Hazardous Waste Control Law from 1989 until 1992.
- c. Ms. Barry's May 23, 1997 Inspection Report also cites later violations by LLNL, including: 1) DTSC's 8/14/92 Compliance Evaluation Inspection (CEI report's findings of 11 violations including storage of incompatible wastes, failure to certify a repaired tank before returning it to service, having an open waste container, and failure to complete employee training; 2) DTSC's Building 693 CEI report's findings of 17 violations, including improper storage of incompatible wastes, incomplete inspection logs, inadequate aisle space in waste storage area, improper labeling of hazardous wastes, inadequate employee training, failure to do tank certification, storage of waste over 90 days without authorization, failure to maintain land ban notification/certification records, and falsification of records; and 3) DTSC's 6-1-94 field-issued CEI report's findings of 7 violations, including storage of hazardous waste over 90 days without authorization or permit, failure to properly label hazardous wastes, failure to meet treatment standards, notification failures, failure to maintain inspection logs with required information, failure to inspect hazardous waste tankers each operating day, and failure to provide annual refresher employee training,
- d. Ms. Barry's May 23, 1997 Inspection Report also describes how LLNL's Total Waste Management System (TWMS), a method of tracking waste site-wide (e.g., waste source, treatment method, treatment results, storage, discharge, movement throughout the site, ultimate destination, shipping date and manifest number) using computer and waste drum bar codes, was inoperable at the time of her inspection.
- e. Ms. Barry's May 23, 1997 Inspection Report also cited LLNL for violating 1) 22 California Code of Regulations section 6626.23(a) (1-3); (b) and (a) for shipping CW offsite without a manifest; 2) 22 CCR 66265.71 (a)(1 -6) for receiving CW from Site 300 without a manifest; (3) 22 CCR 66262-34 (f) (1-3) for storing CW labeled "Radioactive Waste Only," instead of using the required hazardous waste label (the statute requires hazardous waste labels for all Resource Conservation and Recovery Act (RCRA) wastes, all mixed wastes, all California wastes and all combined wastes, in addition to any labeling required by the AEC (sic) for the radioactive portion of the

waste), 4) California Health and Safety Code (CH & SC) sections 25200.5(b)(1-2) and (c), and 25201 (a) for storing and treating CW's not listed on the DTSC-approved Part A permit as well as treating CW with processes not listed on the DTSC-approved Part A permit, and also for storing CW for more than 1 year without DTSC's written authorization (this latter also violates CH&SC section 11 part 1 (a) and the Interim Status Document issued by DTSC). 5) 22 CCR 66265.13(a)(1) and (b)(1 -2) for excluding from Its Waste Analysis Plan (WAP) the appropriate methodology and parameters for making analyses of California hazardous wastes as well as RCRA hazardous wastes; and 6) 22 CCR 66265.16(a)(1-2) and (3)(A-F); (c) and (d)(3) for inadequate training procedures, in that a) LLNL's Training Plan for employees in the Hazardous Waste Management Dept. (HWMD) was below minimum requirements, and b) the WAP requires extensive lectures and practical training in sampling procedures and the handling of samples, yet none of the HWMD training descriptions referred to any practical training other than first aid and fire/earthquake training.

- f. DTSC's 3/7/97 Notice of Deficiency re: LLNL's Part B Application for the DWTF permit now under consideration signed by Pauline Batarseh, Unit Chief of DTSC's Northern California Permitting Branch, found 160 deficiencies.
- g. As of this writing, DTSC is carrying out an investigation of the July 21, 1997, curium-contamination accident in view of LLNL's having ignored safety regulations recently implemented with DTSC's guidance.

The above samples of ongoing compliance problems at LLNL raise reasonable questions as to LLNL's good faith in complying with regulations and statutes, as well as with safety procedures recently implemented with DTSC's assistance. Further, if LLNL has not been complying with its Part A permit, or its "Interim Status" authorization, can it now be trusted to comply with a Part B permit even if that permit has mitigation measures? Again, we ask that DTSC carry out an EIR before making its decision whether to issue a Hazardous Waste Facility Permit.

[12]

Response

As stated in response to Comment 62, DTSC has been conducting annual inspections of LLNL's hazardous waste management facilities since 1984 and is therefore aware of LLNL's compliance history. Whenever DTSC has found violations of state hazardous waste laws and regulations, DTSC has required prompt correction of the violations. During each inspection, DTSC verifies that corrective measures required from past inspections have been implemented and takes appropriate enforcement action for any repeat violations. In making its permit decisions, DTSC considers the gravity of the violations and the degree to which the Permit has site specific conditions which will prevent the recurrence of the violations. DTSC has considered the violations discussed in this comment in its permit decision and does not find that they are of sufficient gravity to warrant denial of the Permit Application. Additionally, the summary of LLNL's compliance history provided in the response to

Comment 62 documents an improving level of compliance with requirements over time. This improving performance shows that LLNL has been making good faith efforts to comply with hazardous waste management requirements and is expected to continue to do so in the future.

DTSC believes that issuance of a Hazardous Waste Facility Permit would lead to increased compliance, since LLNL has attempted to address the problems found from previous inspections and incidents in its Permit Application. Problems found from past inspections included improper waste analysis, inadequate training requirements, record keeping deficiencies and unauthorized treatment and improper storage of incompatible chemicals. LLNL has addressed these problems in its Permit Application by (1) revising its Waste Analysis Plan to clarify generator and HWM responsibilities and to improve initial waste characterization through full scale and fingerprint analysis, (2) revising its Training Plan to clearly describe training for HWM operators and managers, (3) specifying records that need to be maintained for each operation, and by (4) providing a list of all treatment units and the types of wastestreams that are proposed to be managed in those units. Revisions to the Permit Application were completed in October 1998. These required activities will be fully enforced through conditions specified in the Hazardous Waste Facility Permit.

With regard to enforcement issues pertaining to combined wastes referred to in items a. and e.1)-5) of this comment, discussions between DOE and DTSC have been ongoing. Combined waste is defined as waste that consists of California-only hazardous waste that is mixed with radioactive materials. In 1997, DOE and DTSC entered into a Memorandum of Understanding (MOU) regarding the management of combined waste. Under the MOU, DOE and DTSC agreed to complete a Memorandum of Agreement (MOA) between the two agencies to set the technical and administrative process requirements for regulation of combined waste. DTSC and DOE have reached agreement on the technical and administrative process requirements for combined waste. The MOA is being finalized to formalize and implement the agreement. DTSC anticipates completing all procedural requirements to finalize the agreement within the next few months. DTSC expects that the MOA will minimize the possibility that items of non-compliance such as those noted in Items a. and e.1)-5) will occur in the future.

In summary, DTSC believes that LLNL's history of violations is not of sufficient gravity to warrant denial of the Permit Application and has not led to any finding of a potentially significant impact under CEQA. Therefore, an EIR is not required.

Comment 74

LLNL has a history of accidents and spills and needs continued oversight. I do not believe enough oversight would be given with a blanket permit approval.

Response

LLNL's history of accidents and spills is addressed in the response to comment 62. During the term of the Permit, DTSC will inspect LLNL for compliance with the applicable hazardous waste regulations and terms and conditions of its Permit. The Permit would provide for greater oversight of the operations at the Main Site, as compared to the existing Interim Status Document, due to increased specificity in the Permit and the Permit Application.

In response to Comment 73, DTSC considered LLNL's history of violations and finds that LLNL has been making good faith effort to comply with hazardous waste management requirements and is expected to continue to do so in the future. To address LLNL's history of spills, the response to Comment 54 states that remedial actions pursuant to CERCLA will continue to be taken until all environmental threats that are known of today or are discovered in the future are mitigated.

Comment 75

And we already have a history of how they treat their wastes out there. We know how they dump it into the sewer, bury it in unmarked graves where now they're digging it up for another facility, a useless facility, a National Ignition Facility, so that they can continue to do their weapons research. In the name of stockpile stewardship this time. "Stewardship." It's a bastardization of the word. And it's a real shame that the American public is being brainwashed into believing that these people are taking care of us.

[1.h]

Response

Please see response to Comment 52 which explains how DTSC considered LLNL's historical waste management practices and current CERCLA activities in its permit decision. See response to Comment 53 regarding DTSC's discussion of the PCB removal action at the NIF construction site and its potential impacts at the proposed DWTF site. Also, please see response to Comment 62 regarding a discussion of LLNL's compliance history. To address LLNL's history of spills, the response to Comment 54 states that remedial actions pursuant to CERCLA will continue to be taken until all environmental threats that are known of today or are discovered in the future are mitigated.

WASTEWATER DISCHARGE MANAGEMENT/VIOLATIONS

Comment 76

The relationship to groundwater, of course, I'm sure you understand is critical, since any significant release could potentially imperil the water supply. Wastewater releases, which are addressed on page 27 of the Initial Study, are important since the majority of violations in the '80s involve releases of heavy metals into the Livermore sewer system.

We're told, in general terms, what mitigation measures are, but little information on the past releases. Where is the data on the volume and the past releases? Only the 1996 history is discussed. We should have at least 10 years worth. It has to be seen in the totality of where it is and when.

[1.d]

Response

Since the Livermore Water Reclamation Plant (LWRP) is the lead agency that enforces sewer discharge violations, DTSC requested LWRP to conduct a review of its records on LLNL's history of compliance. As requested, LWRP provided DTSC with a summary of all wastewater discharge violations by LLNL between 1984 (when the first pretreatment program records started) and 1997. In 1984, 1985, 1989, 1993, 1995 and 1996 no Notices of Violations (NOVs) were issued.

In 1986, there was an incident involving a Chrome and Nickel spill from a plating shop which caused LLNL to haul away a large volume of sewage collected at the LWRP. This led to the development of the LLNL Sewer Diversion Facility which ensures that all but the first few minutes of the affected wastewater flow is retained at LLNL, thereby protecting the LWRP and minimizing any required cleanup.

The LWRP considered the violations occurring in 1986, 1987, 1988, 1990, 1991, 1992 and 1994, to be minor in nature. Corrective actions were not normally required since subsequent monitoring by LLNL always confirmed a return to compliance.

In 1997, there were pH exceedances that occurred on 2/12/97, 8/21/97, 12/5/97, 12/15/97, 12/19/97 and 12/24/97. Two NOVs, dated March 31, 1997 and January 29, 1998, were issued to LLNL from the LWRP regarding the recurring pH exceedances. On the March 31, 1997 NOV, the LWRP required that LLNL submit a plan to address the low pH discharges and to continue to submit pH monitoring charts with all future monitoring reports. On May 19, 1997, LLNL responded to the LWRP by submitting a five-point plan that focused on strengthening their education outreach training to programs and employees in addition to identifying potential sources of low-pH materials. The LWRP expressed its support of LLNL's efforts to locate sources of low pH discharges in its January 29, 1998 NOV, but required that LLNL bring satellite monitoring stations back on-line due to the pH

exceedances that occurred in December 1997. In response, LLNL stated that they had evaluated the reinstallation of a satellite sampling station system but found that it would be technically and economically ineffective. However, LLNL has discussed several other options with the LWRP and found that the most effective option was earlier detection to capture more of the contaminant farther upstream than LLNL's existing configuration allows. This Upstream Triggers Project was completed on September 30, 1998. The LWRP has inspected the system on November 24, 1998 and found it to be acceptable. Since LLNL's implementation of the employees awareness program and the completion of the Upstream Triggers Project, no pH exceedances have been detected at the outfall which is LLNL's compliance point.

Also in 1997, silver exceedances occurred on 2/5/97 and 2/12/97, a mercury exceedance occurred on 7/4/97 and lead exceedances occurred on 10/31/97 and 11/1/97. For the silver and lead exceedances, subsequent samples showed a return to compliance, therefore no additional actions were required by the LWRP. In response to the mercury exceedance, LLNL proposed a sampling study to determine the effect of sewer line cleaning activities, if any, on LLNL's effluent loading. The sampling study showed no clear correlation between cleaning activities and levels of mercury observed at the outfall. However, since the Upstream Triggers Project that LLNL has recently installed enables LLNL to divert slug discharges based upon continuous monitoring for metals and pH, 24-hours a day, 7-days a week, upstream of the outfall, elevated discharges of mercury can be controlled. Considering that the mercury exceedance has never caused an upset to the sewer system, the LWRP concurred that LLNL's diversion system would adequately address future mercury exceedances.

The LWRP also concluded that there was no indication that any of the violations found between 1984 to 1997 were caused or contributed to by the activities at the Building 514, which is the only hazardous waste treatment area from which wastewater is discharged. Except for the month of January, no other NOV's of sewer discharge limits have been issued in 1998. Finally, the LWRP expressed their support for approval of the Project since it would allow for use of improved treatment technologies that should result in reduced pollutant discharges from the waste treatment area.

Comment 77

On page 28 [of the Initial Study], the statement regarding satellite monitoring stations is not correct. The satellite stations are not in use. These stations need to be reactivated.

[3]

Response

This comment was made by the LWRP in an effort to address LLNL's history of pH exceedances. At the time that the Initial Study was prepared, there were three satellite monitoring stations (86B, 51A, and 163A) that were active and used to collect samples of wastewater for conducting spill trace-back activities. Of the ten satellite monitoring stations that were operating in 1991, all but two (86B and 51A) have been taken off line because they have been found to be technically and economically ineffective. In 1995, one satellite monitoring station (163A) was restored to operation. Currently, the three satellite monitoring stations mentioned in the Initial Study are still active and the other satellite monitoring stations remain off line and will likely never be reactivated. Instead, in response to the series of pH exceedances, LLNL proposed to the LWRP implementation of the Upstream Triggers Project. This project involves conducting pH trace-back with portable pH equipment to more directly identify and earlier detect the point source of discharge. The Upstream Triggers Project was completed in October 1998 and inspected by the LWRP in November. The LWRP approves of the system in lieu of the satellite monitoring stations. LLNL is also in the process of designing new monitoring locations to replace or possibly supplement the existing system.

Comment 78

Another area of concern is that Livermore Lab has chronic pollution problems. I mean this raises a red flag. And as the permitting agency, you must take note of existing problems of onsite pollution of the Lab.

As reported in May of this year the City of Livermore cited Livermore Lab for chronic discharges of heavy metals and corrosive chemicals into the municipal sewer system. This is an activity you'd be permitting.

Under CEQA, DTSC, as the permitting agency, must take note of existing problems of onsite and offsite pollution at LLNL. According to City officials, there had been 14 releases from Livermore Lab above its permit limits since January 1996, a rate of about one violation per month. That just about defines the word "chronic."

One February '97 accident involved a discharge of silver costing \$41,000 to clean up. Another discharge in March of this year was of lead, costing about \$8,000 to clean up.

There's been a very long history of discharges of various heavy metals and also some radioactive metals into the City sewer system.

And what I really want to point out to you is that these are not some ancient history, that these violations continue up until today. This is not a facility to whom you should issue a permit until there are corrective measures taken.

[1.a, 12]

Response

Under the proposed project, the discharge of wastewater into the sewer from the permitted HWM facilities is allowed provided that the treated wastewater meets the City of Livermore Water Reclamation Plant's sewer discharge limits. The incidents mentioned above are violations of the Wastewater Discharge Permit issued by the Livermore Water Reclamation Plant (LWRP). As such, the LWRP has jurisdiction in enforcing wastewater discharge permit violations and not DTSC. However, DTSC did consider the potential impact to the LWRP from the discharge of wastewater into its sewer system. The Initial Study stated that in 1996, LLNL received greater than 99% compliance with LWRP permits covering discharges into the sanitary sewer. No Notice of Violations (NOVs) were written in 1996 for the sanitary sewer. Two letters of concern were issued concerning pH excursions in 1996. On March 31, 1997, LLNL was issued a NOV for a pH exceedance on February 12 for a pH spike below 5, and a silver exceedance on February 5. The silver release occurred which resulted in a daily composite concentration of 0.56 mg/L (The silver violation was likely caused by a photoprocessing operation.) The NOV specifically targeted these two discharges, but treated the pH exceedance as a continuation of the low pH exceedances in 1996. For the silver exceedance, subsequent samples showed a return to compliance, therefore no additional actions were required by the LWRP. These violations have not been attributed to the treatment of hazardous waste because a review of the treatment logs from the Area 514 Facility from January through August 1997 revealed no pH or silver exceedances. LLNL has already responded to the LWRP's request for a plan to eliminate future pH exceedances and the LWRP is in agreement with their proposal. Based on the corrective measure taken by LLNL, DTSC considered the impacts to the LWRP due to wastewater discharges from LLNL to be less than significant.

In regards to radioactivity, the LWRP defers oversight to the DOE who imposes isotopic limits for wastewater discharges under DOE order 5400.5. Under this order, LLNL is required to monitor its wastewater at the outfall for radioactivity on a monthly basis. A summary of the results are then submitted to the LWRP for their information. LLNL is also required to prepare a Site Annual Environmental Report which contains the results of its monitoring activities for the year. For at least the past 20 years, LLNL's monitoring shows that they have never exceeded any of the isotopic limits set by DOE.

In regards to the cleanup costs mentioned in the above comment, they were not for "cleanup" as is the case with a spill or release to the environment. These costs were associated with disposal of contaminated sewage contained within LLNL's Sewer Diversion Facility (SDF). The sewage was

diverted by the SDF, thus preventing it's release to the LWRP, by the B196 on-line monitoring system. None of this material was released to the environment and no cleanup was needed.

Comment 79

The City of Livermore concurs that the proposed facility will provide enhanced protection of the Livermore Water Reclamation Plant by using improved treatment technology (cold vaporation) capable of producing a "cleaner" wastestream and by applying lower discharge limits than currently used at Building 514. Currently, the LLNL internal discharge limits or the federal categorical limits are applied to all discharges from the Building 514 waste treatment area. The Part B application for the new facility includes "procedures that require treated wastewaters to be tested for compliance with the wastewater discharge permit limits, prior to discharge to the sewer (Part B, 1996, Vol. 4, p. 60)." However, the wastewater discharge permit limits (local limits) are lower than both the LLNL internal limits and the federal limits.

[3]

Response

DTSC acknowledges that the wastewater discharge permit limits are lower than both the LLNL internal limits and federal limits. The statement in the Initial Study indicating that treated wastewaters would meet wastewater discharge permit limits prior to discharge to the sewer was intended to mean that treated wastewaters combined with sewage flow from other locations of LLNL would meet the discharge permit limits at the outfall. The LLNL internal discharge limits or applicable federal categorical limits will continue to be applied to all discharges from the Building 514 waste treatment area and will also be applied at the proposed DWTF treatment area.

Comment 80

LLNL has a history of sewer system problems. LLNL's current "Interim Status liquid waste treatment process discharges treated wastewater directly into the Livermore municipal sewer, and the Hazardous Waste Facility Permit as written would allow this practice to continue. Theoretically, treated wastewater is safe for discharge into the sewer, but, in view of 1) LLNL's repeated violations of its sewer discharge permit, 2) past sewer leaks into the adjacent soil and groundwater, 3) the highly contaminated groundwater at LLNL, and 4) the close proximity of the surrounding community, it is reasonable to question the safety of this practice.

[1.a, 12]

Response

Treated wastewater from the existing Interim Status treatment facility is not discharged directly into the Livermore municipal sewer. The treated waste water is pumped into a holding tank where samples of this treated water are analyzed for metals, organic compounds and radioactive constituents. Only after these analyses are checked to see if the water meets stringent release criteria, is the wastewater sent to the outfall where it combines with wastewater discharges from other LLNL processes or buildings. For a discussion on LLNL's wastewater discharge compliance history, please see response to Comment 78. Considering the nature of the wastewater discharge violations and the actions that LLNL has taken to address them, no impacts to public health is expected.

Comment 81

Problems with LLNL's Application. DTSC has accepted LLNL's underlying 11-volume DWTF Permit Application as the permit's basic "game plan." However, LLNL's application has inadequacies. One example is: wastewater analysis and discharge -- As mentioned above, all of LLNL's wastewater is first combined and then discharged from a single point within LLNL. It then flows directly to the Livermore Water Reclamation Plant (LWRP), per an agreement between LLNL and LWRP, a DTSC-certified lab is not required to verify wastewater analyses prior to discharge into the sewer. The given rationale is that verification by LLNL facilities shortens the turnaround time for sample collection and analysis. However, this contrasts with other LLNL waste analyses, which are required to be done by DTSC-certified labs. In view of LLNL's history of accidents and discharge violations (see above), and to ensure public health & safety and the environment, it is reasonable that DTSC, as a condition of either LLNL's "Interim Status" authorization, or a hazardous waste facility permit, should require some sort of oversight by DTSC-certified labs of such verification prior to wastewater discharge into the sewer (assuming that a completed CEQA EIR has examined all issues and alternatives and points toward an "all-clear" for a permit to be issued).

[12]

Response

DTSC finds that a Permit condition requiring the use of State-certified labs to verify wastewater analyses prior to discharge into the sewer is unnecessary as explained below.

The discharge of wastewater into the sewer from LLNL is regulated under a Sewer Discharge Permit issued by the City of Livermore Water Reclamation Plant (LWRP). Under this permit, LLNL is required to take all their total effluent self-monitoring compliance samples at the outfall of the facility. All compliance samples are already sent to and analyzed by an offsite, state certified analytical laboratory. In addition to the self-monitoring program performed at the outfall, LLNL also samples at the point-of-discharge for retention tank discharges and categorical processes. Samples for

compliance with categorical limits are also sent to a state certified lab because these limits are federally mandated and the results are reported to the LWRP on a semiannual basis. Samples for compliance with LLNL internal discharge limits are analyzed by onsite state certified laboratories since these limits are set by LLNL to ensure that the combined flow at the outfall meets permit discharge limits. Since no violations of sewer discharge limits can be determined from the monitoring of internal discharge limits, having a state certified lab to verify analytical results prior to discharge would not serve any purpose except to verify in-house results and lengthen turn around time. Therefore, a Permit condition requiring such verification is unnecessary. However, to address past discharge violations, LLNL has implemented other discharge control measures which include completion of the Upstream Triggers Project, an employee awareness program, and sewer line cleaning. For more information on these activities, please see response to Comment 76. The LWRP has been monitoring the progress of LLNL's efforts and is in agreement with them.

STORAGE OPERATIONS

Comment 82

LLNL has a history of being out of compliance with safe storage requirements. Examples of this include: 1) "Old" waste -- LLNL has had violations in how long it stores hazardous waste, e.g., in 1989-90, a DTSC inspector inspected 21 of LLNL's 100 hazardous waste areas and found that 11 had waste stored for more than 1 year (1 year is the maximum storage period allowed under California's Health & Safety Codes before such waste must be treated and/or disposed).

In light of the fact that waste has historically been found over the date when LLNL is allowed to keep it, that should at least be part of the Permit inspected and their feet held to the fire on that.

[1.a, 12]

Response

Permit Condition IV.10(a) would authorize LLNL to store hazardous wastes in the permitted storage areas up to a maximum of one calendar year from date of first acceptance at the HWM facility. Under Permit Condition IV.10.(b), LLNL will be allowed to store mixed waste in excess of one calendar year provided that the mixed waste is covered in the Federal Facility Compliance Act - Site Treatment Plan for LLNL. These permit conditions would be enforced during any future DTSC inspections.

Comment 83

One unanswered question is: Does LLNL ever label mixed waste as radioactive.

In the past the Nevada test site, which accepts only radioactive wastes, has returned waste shipments to the Lab because mixed wastes were included in the shipments but were not labeled as such. And at one point that resulted in a moratorium where the Lab was not allowed to ship any radioactive wastes offsite to the Nevada test site. And those wastes piled up. I don't see anything in this Permit that deals with the potential for that kind of situation to happen again.

[1.a, 12]

Response

DTSC is unaware of any hazardous waste activities where LLNL labels mixed waste as radioactive only waste. Procedures described in Volume 1, Part VI of the Permit Application states that containers being used for accumulating hazardous waste will be marked and labeled with the words "Hazardous Waste" or "Hazardous and Radioactive Mixed Waste" and not radioactive only.

DTSC has determined that the Nevada test site (NTS) shipments of mixed waste labeled as radioactive only, which are addressed in the referenced comments, occurred in 1990. The improper labeling was inadvertent and resulted from inadequate characterization by the generator of the waste. Since this occurrence, NTS has revised its Waste Acceptance Criteria and now requires radioactive waste generation sites to develop and implement a waste certification program, in which radioactive waste must be certified to meet the NTS Waste Acceptance Criteria. Currently, LLNL has a certification program in place that is approved by NTS. LLNL has successfully shipped properly labeled mixed waste to NTS since 1993.

In addition, the potential for improper waste characterization in the future is considered low due to the Permit requirement for LLNL to follow the Waste Analysis Plan (WAP) contained in their Permit Application. The WAP contains procedures that ensure proper waste characterization such as establishing a waste profile, conducting fingerprint or full-scale analysis, completing a Waste Discharge Requisition form, and reviews to be performed by HWM field technicians and chemists.

Comment 84

We have a continuing concern about the Building 280, as a storage facility, and that concern is because that building has an increased capacity. And the history of Livermore Lab is that when a building has a greater capacity somehow that capacity ends up getting filled.

And the Permit really should be geared toward waste source reduction and pollution prevention. And anything that has buildings with greater capacity is something that sends a little red flag for us.

[1.a]

Response

Under the proposed project, Building 280 is intended to be a replacement for Building 233. The commenter is correct in that Building 280 has a greater design storage capacity than Building 233 and will be allowed to store up to its maximum capacity. Although this appears to be an increase over the currently allowed capacity of 808,714 gallons under interim status, the storage capacity for the proposed facility actually will not change since the permit limits the combined storage capacity for all permitted storage units to a maximum of 808,000 gallons (including solid waste). In addition, Building 280 is an improvement to Building 233 in that it meets current seismic standards and is designed for radiological protection, two factors which are current concerns at Building 233.

Comment 85

All Lawrence Livermore Lab mixed waste should be correctly and accurately labeled. I think this is really important that mixed waste should be labeled on the drums as both hazardous and radioactive and not simply as mixed waste.

[1.c]

Response

Volume 1, Part VI of the Permit Application describes how containers will be labeled. As required by regulation, containers that are being used for accumulating hazardous waste will be marked and labeled with the words “Hazardous Waste” or “Hazardous and Radioactive Mixed Waste.” Other information that can be found on the label include a brief description of the waste (i.e., composition), the physical state (i.e., solid, liquid, or gas), and its hazardous properties (i.e., flammable, reactive, etc.).

TREATMENT OPERATIONS

Comment 86

Mixed waste treatment has been an ongoing problem. And the State, we believe, has had difficulty in determining just how the Lab treats some of its mixed waste. To evaluate, among other things, whether incompatible wastes are combined and the cross-contamination that occurs between these two types of waste in some cases.

[1.a, 12]

Response

All hazardous and mixed waste treatment processes are specified in Table 9, Volume 4 of the Permit Application. Under the Permit, LLNL would be allowed to perform treatment activities such as drum rinsing and crushing; decontamination and disassembly of contaminated objects; neutralization, oxidation/reduction, precipitation, chelation, adsorption and other common wastewater treatment methods; cold vapor evaporation; centrifugation; gas adsorption; filtration; shredding and chopping of debris; solidification; uranium bleaching and controlled temperature and pressure reactions.

Part VI, Volume 1, of the Permit Application contains procedures for the management of incompatible wastes. DTSC reviewed these procedures and found that they comply with the requirements of 22 CCR 66264.17 to prevent violent reactions, uncontrolled gasses in sufficient quantities that may threaten public health, and damage of the structural integrity of the treatment unit.

Comment 87

There are some Livermore Lab waste treatment facilities that would get a Permit under this current proposal that have a history of problems, including accidents, and that we believe, quite frankly, don't meet modern safety standards.

One is the Dorr Oliver machines, those big, you know, cement mixer kind-of things, for the mixed wastes. There's a history of problems, including splashing tritium-contaminated water around on the floor with those. I don't think that they should be permitted.

Also the Filter Shredder, which we talked about earlier, where they had the recent accident with the curium.

We have continuing concerns about the uranium burn operation. We've done investigations of the past. I recognize that it's a different procedure. In the past they used argon gas and other kinds of gases, fed in, in order to oxidize the chips. We have reports, including one from Verner Bergman, their premiere aerosol physicist, that these procedures overwhelmed the HEPA filters.

[1.a]

Response

LLNL has not applied for the Dorr Oliver rotary filter machine to be permitted. The Dorr Oliver rotary filter will be closed according to the closure standards specified in Title 22, CCR after the DWTF complex starts operation. For the commenter's information, the Dorr Oliver does not function in a similar fashion as a cement mixer, but is a standard vacuum filtration system which uses diatomaceous earth as the filter medium.

The shredder involved in this occurrence has been taken out of service because it was heavily contaminated with radioactivity. A new shredder will be installed in Building 695 as part of the Project. The new shredder will be designed according to the standards described in Volume 11, Appendix XIV.4-H of the Permit Application. DTSC has reviewed this design and finds it to be acceptable for size reducing debris such as cloth, paper, cardboard, and other fibrous materials. However, shredding HEPA filters shall not be authorized under the HWMF Permit. Also, please see the response to Comment 66 regarding DOE's and DTSC's investigation of the July 1997 shredder incident.

In the past, uranium waste was received in 30-gallon drums that were filled with coolant, a water soluble oil that prevented the uranium from generating heat or friction. The drums' contents were poured out one at a time into a steel tray. Once the material was unloaded in the tray, it was rinsed with a solvent to remove the coolant residue. The uranium was then dried and loaded into the burn box for processing. To initiate the burn, a spark was introduced to ignite the uranium. It would burn on its own and produce a uranium powder which was removed after the fire had diminished and the burn box had sufficient time to cool. Due to its pyrophoric characteristics, no fuel, except for the uranium itself, was used in this process to maintain heat. The burn box had a cooling jacket that protected the HEPA filter from the heat that was generated as a result of the process. The amount of uranium processed at any one time was between 100 and 200 pounds.

Related to the past uranium process, the commenter mentioned the use of argon and other gases to oxidize the chips and the fact that these procedures overwhelmed the HEPA filter. DTSC is not aware of any information regarding the use of argon or other gases in the past nor of any incidents with the past uranium process which overwhelmed the HEPA filter.

The new process described below will use nitrogen to safely create an inert atmosphere. In addition, the pressure drop across the HEPA filter to be used in the new process will be monitored continuously to ensure that it is functioning properly.

The proposed uranium bleaching process is not the same as the past uranium oxidation process. As described in the Volume 11, Appendix XIV.4-L of the Permit Application, the treatment involves a controlled reaction between the elemental uranium and an oxidant. The treatment process begins by draining the immersing fluids (normally water and/or mineral oil) from the uranium chips. Approximately 80 pounds of the uranium waste is then placed into the reaction vessel which is purged with nitrogen. Nitrogen is used throughout all the treatment steps to ensure that an inert atmosphere is provided. Next, the oxidant, either a sodium hypochlorite solution or hydrogen peroxide, is introduced into the reaction vessel. Reagent in excess of the stoichiometric amount is added to maximize the amount of uranium oxidized. The oxidant solution is recirculated to enhance the mixing and oxidation process. To cool the solution within the reaction vessel, cold water is typically used in a heat exchanger on the recirculation loop. As the reaction proceeds, fresh oxidant solution is fed into the reactor and equal amounts of spent oxidant solution is removed. The temperature of the reaction vessel is continuously monitored and kept below 140°F. Once the treatment process is complete, the oxidant solution is drained for further processing in the liquid waste processing area. Following oxidation, a reducing agent (sodium thiosulfate) may be added to form uranium dioxide.

DTSC finds that the design and operation of the new uranium bleaching process is an improvement over the past uranium oxidation operation and should be a permitted unit based on the facts that (1) the proposed uranium bleaching operation will be conducted in an enclosed vessel in an inert nitrogen atmosphere; (2) that the operation will not involve actual burning of materials; (3) that the operation will take place in a walk-in hood equipped with an acid gas scrubber, HEPA filter, and carbon adsorption columns; and (4) that the uranium waste is treated in relatively small batches, 80 pounds or less.

Comment 88

It's clear that in the past our community has been contaminated both with uranium and plutonium, since they oxidize chips of both, which brings up the second question. They're still going to be oxidizing plutonium chips somehow, somewhere. And I don't see any mention of that at all in this Permit.

[1.a]

Response

LLNL only proposed to perform oxidation of uranium chips in its Permit Application. Therefore, the oxidation of plutonium chips is not mentioned in the Permit or Permit Application and will not be an authorized treatment activity.

Comment 89

And one of the inadequacies that I found in the Application itself has to do with the waste water analysis and discharge. All of the Livermore Lab's waste water is first combined and then discharged in a single point within the Lab. And then it flows directly to the Livermore Water Reclamation Plant.

And now there's an agreement between the Lab and the Reclamation Plant that a DTSC-certified Lab is not required to verify any of the waste water analysis prior to the discharge from the site into the sewer which goes into the plant. The rationale is that verification by Lab facilities shortens the turnaround time for sample collection and analysis.

However, there are other analyses performed, waste analyses performed at the Lab which are done by DTSC-certified labs. They're required to do that.

And so I think in view of the history of the Lab's accidents and discharge violations which occur again and again and again, and to ensure the public health and safety and the environment. DTSC should include a condition in the Permit that requires a DTSC-certified lab to verify LLNL's waste water analysis prior to the discharge into the City of Livermore sewer system.

[1.b, 1.c]

Response

See response to Comment 81.

Comment 90

There was mention here about the oxidation of the surface of uranium metal waste. I came across a sample of depleted uranium, solid depleted uranium, which I had never seen before. And one thing I noticed about it was that the oxide coating on the surface was these thin flakes that easily flake off. Uranium does not form an oxide layer on its surface that bonds tightly to the surface like in aluminum and other things like that.

It easily -- once it forms, it detaches easily from the surface, exposing the surface underneath to further oxidation. I believe in the uranium oxidation process that the solid uranium should be oxidized totally to -- the bulk metal should be oxidized totally to uranium oxide before disposal.

[1.c]

Response

The proposed uranium bleaching process involves a controlled reaction between the elemental uranium and an oxidant. The treatment process begins by draining the immersing fluids (normally water and/or mineral oil) from the uranium chips. Approximately 80 pounds of the uranium waste is then placed into the reaction vessel which is purged with nitrogen. Nitrogen is used throughout all the treatment steps to ensure that an inert atmosphere is provided. Next, the oxidant, either a sodium hypochlorite solution or hydrogen peroxide, is introduced into the reaction vessel. The oxidant solution is recirculated to enhance the mixing thereby allowing oxidized layers to flake off and exposing more uranium for further oxidation. Reagent in excess of the stoichiometric amount is added to ensure that all the uranium is completely oxidized to the point that no more oxidized layers can flake off. To cool the solution within the reaction vessel, cold water is typically used in a heat exchanger on the recirculation loop. As the reaction proceeds, fresh oxidant solution is fed into the reactor and equal amounts of spent oxidant solution is removed. The temperature of the reaction vessel is continuously monitored and kept below 140°F. The treatment process is considered complete when the reaction vessel is at room temperature and visual inspection of the treated material reveals only the presence of uranyl hydroxide, a stable compound. If needed to meet offsite disposal facility waste acceptance criteria, the uranyl hydroxide may be reduced to uranium dioxide.

Comment 91

What happens if hazardous wastes can't be shipped off the site, or mixed wastes, as happened in the early '90s when Nevada refused shipment? And the future of that is certainly unclear at this point, as well.

[1.d]

Response

Under the Permit, LLNL would be able to store hazardous waste for up to one year. If, for any reason, LLNL cannot treat or transfer the waste offsite to a permitted treatment, storage and/or disposal (TSD) facility, it is required to notify DTSC and obtain authorization to store beyond their permitted storage limit.

In the case of mixed waste, LLNL is allowed to store these wastes in authorized areas until a suitable offsite TSD facility becomes available. Also, in accordance with the 1992 Federal Facility Compliance Act, DOE has developed plans for managing and treating mixed waste at sites that generate and/or store the waste. USEPA has delegated its authority under RCRA to DTSC who has approved this plan, commonly known as the Site Treatment Plan (STP). The approved STP calls for onsite treatment of some wastes and shipment of the remaining mixed wastes to an authorized out-of-state facility for treatment. Current offsite facilities include the Envirocare facility in Clive, Utah, the Idaho National Engineering, Environmental Laboratory (INEEL), and the Toxic Substance Control Act (TSCA) incinerator in Oak Ridge, Tennessee. Also, DOE will be authorized to ship its transuranic mixed waste

to the Waste Isolation Pilot Plan (WIPP) pending issuance of the required environmental permits for that facility.

In 1995, LLNL (in collaboration with the University of California) expanded a program to audit hazardous waste disposal sites and verify that their waste management practices are fully compliant with DTSC or RCRA requirements. LLNL has an approved list of other offsite disposal facilities, some with similar capabilities. In this way, if a disposal facility were to close down or otherwise be unable to take LLNL's hazardous waste, an alternate facility could be used.

Comment 92

I want to know how many filters are in all the facilities that will shred, burn -- there are all kinds of fancy names for that burner, or incinerator, or oxidizer. Now it's called a bleacher. I would think that a new term which might obscure the thing even better would be an electron transfer process.

Now these burners, especially one that's going to burn uranium metal and plutonium probably also, those filters will be challenged per cubic meter with material that's in the grams ballpark per cubic meter down to milligrams per cubic meter.

To have an acceptable level outside that facility requires at least four filters in series to have that challenge to them reduced to one part in 10-to-the-14.

Even though I will allow you to assume that they are 4-9s efficient, that's 99.99 percent. And they are not that efficient at the 10th micron region. That's a translucent window in the HEPA filter. And they can't do anything about it.

Now to get that down to acceptable levels requires four HEPA filters in series, not counting the prefilters now. And if you go to these and take the word of the Laboratory people, "Oh, we've been using two filters in series in the plutonium building since we built the damn thing." Man, that scares the hell out of me. Even though that's the accepted technique and they won't change it. There's only two filters in the plutonium building. That's absurd, to do anything like that in this day and age, after all these years of study of performance of HEPA filters.

You have a shredder facility which has the machinery to produce aerosols of the 10th micron region. You have a chopper, which will do the same thing.

[1.g]

Response

It is important to clarify a misconception about the uranium bleaching process. This process takes place in an aqueous medium, as described in Volume 11, Appendix XIV.4-L of the Permit Application. Typical operating temperatures will be 50°C or less. Thus, it is not correct to suggest that this is a “burn” operation. This operation will be used for uranium only, not plutonium.

Secondly, the Shredder and Chopper devices are both large, low-speed industrial units, designed to reduce the size of very large (55 gallon drum size) objects into baseball size objects. These low speeds (typical 12 rpm for the shredder) are not sufficient to produce aerosols or sub-micron particles (unless the sub-micron particles already existed as surface contamination).

Air emission controls will be installed to preclude the unmitigated release of hazardous and radioactive air pollutants from operations inside B695. These controls will consist of local abatement equipment and general building ventilation. Local abatement equipment will be provided for all treatment processes where significant air emissions are expected. (For example, the ventilation system for the Uranium Bleaching Unit was described in response to Comment 87 and the ventilation system for other treatment processes is described in response to Comment 94. The treated off-gases from the local abatement equipment will be combined with the building air ventilation system for final filtering and monitoring prior to discharge to the atmosphere. The B695 air ventilation system will consist of a HEPA filter, blower, and a stack. The stack exhaust will be monitored for tritium and particulates containing radionuclides. Continuous air monitors and passive air samplers will also be provided at locations where radioactive waste is to be handled. [Part B, Vol. 11, pp. 10 and 29]

HEPA filter performance is tested with an aerosol as described in response to Comment 95. Should the results of the test determine that the filter is “challenged”, it is replaced.

HEPA filters are generally efficient to greater than 99.90 % across the whole size range from less than 0.01 micrometers to greater than 10 micrometers (the respirable size range). There is a slight decrease in efficiency from 99.97% to about 99.90 % (slight increase in penetration) for particles in the 0.1 to 0.3 micrometers size range. For that reason penetration tests are always performed in that range to “challenge” the HEPA filter. But in risk assessments LLNL always uses a more conservative value of efficiency and allow a larger average value of penetration to be on the safe side. For example, a value of 99.00 % is used to calculate an exposure that is overestimated.

Comment 93

Now this centralized processing staging area, that's only a word. I don't know what they're going to do there. These general graphs have to be given out in absolute detail to criticize them or let them go by because the devil is in the details.

[1.g]

Response

It is not clear which processing area of the Project the commenter is referring to. However, there are processing areas in Building 695 such as the Liquid Waste Processing Area (LWP) and the Reactive Waste Processing Area (RWA). Building 695 is described in detail in Volume 11 of the Part B application which was available for public review at the Livermore Public Library, the LLNL Eastgate Visitors Center, and at the DTSC Berkeley Office during the public comment period. In short, the LWP will be used to conduct wastewater treatment activities, size reduction of debris, and drum rinsing. The RWA will be used to perform reactions that require precise temperature and pressure controls to be maintained.

Also, the fact sheet for this permit action, dated September 9, 1997, mentions Building 696 as part of the DWTF complex. As stated in the fact sheet, Building 696 is a radioactive waste processing and storage building. No hazardous or mixed waste will be handled in this area and, therefore, its operations are exempt from DTSC's permitting requirements. Both DTSC and DOE will continue to review the specific set up of equipment and control systems in Building 695 as it is constructed and final specifications are provided.

Comment 94

Even this cold evaporator, that is supposed to evaporate materials or allow them to boil at low temperature. Any boiling process produces an aerosol. Anything that's in water solution and it bubbles once, aerosols come up. The aerosol water droplet evaporates, and you have very tiny aerosol-dried particles which will challenge the filter.

[1.g]

Response

As part of the Interim Status Document (ISD) modification, a local off-gas treatment system was installed in Area 514-1 along with the waste blending station, centrifuge, and cold vapor evaporator. This off-gas treatment system (along with the waste treatment equipment) will be relocated to B695. When one of these waste treatment units is operating, the off-gas first passes through a horizontal packed bed scrubber which removes acid gases and soluble compounds and also traps particulates. The exhaust from the scrubber is dehumidified by passing through a mist eliminator (built into the scrubber) followed by a heater. The heater is sized to prevent condensation which could damage HEPA filters and to optimize the adsorptive properties of the downstream carbon beds. Compressed process air may also be used for additional dehumidification. The off-gases then pass through the HEPA filter, the blower, and the two in-series carbon adsorption columns. The HEPA filter is designed to remove at least 99.97% by weight of particulates that are 0.3 micron in diameter and larger from the

gas stream. The HEPA filter includes a prefilter and a final high efficiency filter element. [Part B Vol. 11, p. 11 and Appendix XIV.4-K]

Please see response to Comment 92 regarding HEPA filter penetration efficiency. A HEPA filter is replaced when it fails a performance test which uses an aerosol to determine its efficiency, as described in response to Comment 96 .

Comment 95

Even that building [Central Processing Area] should have four filters in series as an absolute minimum. And if they are proceeded with a spray to avoid fire, that makes the situation even worse, because the blowers, to maintain the air passage through those filters and protect the workers in that building, will have to have a blower pulling air through those filters. Typically they run at about 10 to 15 inches of water, which means five pounds pressure per square foot. If those things get wet the efficiency goes to zero. And all that crap would be in town.

Now if you talk to the garbage detail, I don't think you should pay attention to what they tell you just because they work in a facility that has world-class scientists. You cannot assume that they are world-class people at all. That's a false assumption. Just because I shook hands with Einstein at a physical review meeting or hobnobbed with Feynman and his drums does not mean I'm in their category. And you should not believe it. You should do your own homework, very carefully, on this filter problem. Do not take their word.

If you want to take their word, they have world-class filter experts out there, talk to them and keep the garbage detail people out of site until you've talked to them.

Now much effort by the Germans, the English, the Americans, the guys at Los Alamos, the people here have spent an awful lot of work studying those filters. Talk to them. Don't read rule books. I don't give a damn about your rules, because you are faced with protecting the public. They can do what they want for people who are paid to work there, but not the people outside the fence.

[1.g]

Response

Building 695 consists of storage and treatment units that may handle liquid, solid, and gaseous waste. Localized air abatements systems will be provided for a majority of the treatment systems to remove hazardous constituents from the process off-gases. Depending on the treatment process, air abatement systems could include a HEPA filter, a heater, carbon adsorption column, a scrubber to capture volatile organic compounds and a variable speed blower that would capture particulates and radionuclides. These systems, independent of general building ventilation, are designed to handle the emissions from the processes.

Although not required by the UBC, LLNL designed Building 695's general ventilation system to include a HEPA filter as a best management practice. Equipment, such as demisters and/or heaters, is installed upstream from a HEPA filter if it is anticipated that moisture may be present which could affect HEPA filter performance.

DOE-STD-3020-97, "Specification for HEPA Filters Used by DOE Contractors" provides guidance to DOE contractor sites for procurement and testing of HEPA filters used in DOE nuclear facilities. This standard specifies that new, unused filters be wet tested with water vapor. In addition, the new filters are required to withstand a pressure differential of 10 inches of water plus or minus 2 inches for 60 minutes without visible evidence of damage. Within 15 minutes of the pressure differential test and while still wet, the filter must meet the aerosol penetration requirement at 20% of nominal airflow rating. The DOE standard also requires the filter to withstand exposure to air heated to 700EF plus or minus 50EF.

At LLNL, ventilation systems containing HEPA filters have performed in accordance with their design, as demonstrated by ambient air monitoring results. For those operations involving radioactive and hazardous air pollutant emissions, LLNL is required to comply with the Federal NESHAPs requirements. LLNL has gathered and published data in the 1996 Site Annual Environmental Report demonstrating that LLNL emissions of radioactive concentration in the ambient air are well below levels that would cause concern to the environment or public health according to existing regulatory standards.

Comment 96

You should also require a minimum of five years for exchange of all filters. All HEPA filters should be changed within the five-year limit. You can check up on the recommendation of the internal Department of Energy experts on HEPA filters. Request that thing, to read it. You read it personally. Get that document and read the internal recommendation of the guys from Los Alamos, the guys here, about the uses and cycling of those HEPA filters. And those HEPA filters are needed in many places in that setup, or I'm afraid of it, if you let them get by with it.

[1.g]

Response

There is no DOE or manufacturer requirement that HEPA filters be replaced every five years. However, DTSC believes that placing a five-year limit on HEPA filters is unnecessary since LLNL already tests and inspects HEPA filters to determine frequency for replacement. For HWM facilities, HEPA filters will normally be replaced when (1) they fail aerosol challenge testing; (2) systems no longer provide required volumetric airflow; or (3) filters show an increase in flow resistance on the order of 4 inches water gage from when they were installed (Part B, Vol. 1, Part VI, Section 4.2.7).

HEPA filters are tested when the system is first installed, whenever the filter is replaced, and annually for all operational HEPA filters. The tests are performed on the filters in place together with associated ducting. Two tests, a differential pressure test and an efficiency test, are performed on the filters.

The differential pressure test indicates the pressure drop across the filter, which will determine the extent of dust loading or failure of the filter. HEPA filters are replaced when the pressure drop across the filter is about 4 inches of water (range of 3-6 inches of water) at the rated flow where the flow decreases below 100 ft/min at the point of capture.

The second test determines the efficiency of the filter. This filter is challenged by a test aerosol, di-octyl phthalate (DOP). This test measures representative concentrations of the upstream (unfiltered air) compared to the downstream (filtered air). If the percentage of DOP penetration is greater than 0.03 %, then the filter system is checked for leaks or seal bypasses. After the defect is discovered and repaired, the filter system is retested.

During operations, all ventilation systems which have HEPA filters installed are inspected quarterly. The filter housing is inspected for signs of warping, water damage, or separation of the frame. All connections are checked for a tight fit, boot decay, and secure clamps. Duct work is examined for signs of corrosion, wear and penetrations.

Based on the inspections and tests described above, DTSC considers LLNL's maintenance of HEPA filters to be adequate in ensuring that they are maintained and replaced in a timely manner and the five year limit is not necessary.

Comment 97

Some aspects of the permit are too vague and open-ended. In particular, benchtop operations, ostensibly for research, are too poorly defined to allow the laboratory the discretion to initiate runs without prior governmental and community environmental review.

[11]

Response

The "benchtop operations" that the commenter is referring to is known as the Small Scale Treatment Laboratory under the proposed Permit. Permit Sections IV.8(a), (d), (f), and (g) have been revised to allow only the treatment processes that are already approved to be conducted on a large scale within the DWTF main treatment area to occur on a bench top scale on an occasional basis. This treatment is not intended as research but is a small scale version of known treatment technologies. Please see response to Comment 98 for a description of the allowable treatment processes.

Comment 98

Small Scale Treatment Laboratory. According to the IS and LLNL's application, there would be a "small scale" treatment lab within the larger DWTF complex, purportedly to process small amounts of waste. There appears to be at least four major problems with this, 1) the "small scale" lab's waste processing limits would be up to 250 kg per day, a large amount of waste, not "small scale;" 2) LLNL would be able to process these wastes without much more than slim bureaucratic oversight by DTSC (LLNL would be allowed to work up individual plans for this lab); 3) DTSC could waive the 250 kg per day limit case-by-case, depending upon the specific plan submitted by LLNL; and 4) there are no provisions for public notice and participation. Altogether, this section seems to be a "loophole" potentially allowing LLNL to conduct hazardous waste processing without adequate regulation and public participation.

[1.b, 12]

Response

LLNL proposes to conduct small scale treatment for wastestreams containing hazardous characteristics or constituents that are best handled separate from other wastestreams for waste minimization and handling reduction purposes. LLNL also proposes to conduct uranium bleaching, mercury amalgamation, water reactor, pressure reactor, and gas adsorption processes. The draft permit considered both the small scale treatment and these other processes to all be a part of a single management unit, the Small Scale Treatment Lab, with a single maximum capacity of 250 kg per day of waste. In response to this comment, DTSC revised the draft permit to designate uranium bleaching, mercury amalgamation, water reactor, pressure reactor and the Gas Adsorption system as individual management units and specified the individual maximum treatment capacity of each unit. DTSC also established a maximum capacity for the remaining processes in the Small Scale Treatment Lab of 10 gallons or 38 kg per day (See Permit Condition IV.8(b)). This 10 gal/day limit is based on the typical sizes of the equipment that will be used on a "bench top" scale. Permit Sections IV.8(a), (d), (f), and (g) have also been revised to allow only the treatment processes that are already approved to be conducted on a large scale within the DWTF and Area 612 main treatment areas, only on a bench-top scale.

The types of small scale treatment expressly allowed by the draft Permit are those which the draft Permit allowed to be performed within the DWTF main treatment areas, only on a bench-top scale. These treatment methods include:

- waste blending which involves blending smaller batches of compatible wastes and for conducting neutralization/pH adjustment, oxidation/reduction, cyanide destruction, ion exchange, adsorption, precipitation, sizing/blending;

- treatment in containers (similar to treatment in tanks in B695) which involves treating aqueous waste by neutralization, oxidation/reduction, precipitation, chlorination, cyanide destruction, degradation, detoxification, liquid ion exchange, physical separation by decanting, settling, and floatation;
- centrifugation which involves separating multiphasic immiscible liquids and heterogeneous liquid/solid solutions, into several phases based on differences in their respective densities;
- filtration which involves removing solid and ionic contaminants from wastewater;
- size reduction which involves shredding, chopping, and cutting to size reduce solid wastes;
- washing which involves the treatment of debris to meet Land Disposal Restriction requirements; and
- solidification which involves the addition of a solidifying agent to liquids to immobilize hazardous constituents.

Under the draft Permit, LLNL is required to obtain prior approval of DTSC before using any small scale treatment methods other than those specified above. The draft Permit has been revised so that any small scale treatment method other than those specified above will not be allowed unless LLNL requests and obtains approval of a permit modification from DTSC. The Permit modification procedures are specified in the regulations and contain provisions for public notice and participation.

Comment 99

Need better methods of tritium and uranium (needs four HEPA filters in series changes at least every 5 years) capture.

[15]

Response

As stated in response to Comment 96, based on the inspections and tests described above, DTSC considers LLNL's maintenance of HEPA filters to be adequate in ensuring that they are maintained and replaced in a timely manner and the five year limit is not necessary.

For radioactive emissions, please see response to Comment 107 which explains that LLNL is required to comply with USEPA and NRC standards which are enforced by DOE through its Orders.

RADIATION IMPACTS

Comment 100

It should further be noted that considerable "fair argument" exists in the scientific community regarding the health effect of low-level ionizing radiation of the variety emitted by LLNL during routine operations and minor accidents. The IS does not mention epidemiological studies conducted in the Livermore area in the last 20 years, including a recent preliminary finding of some increased incidents. These need to be adequately dealt with in a full EIR.

[8]

Response

Please see response to Comment 125 regarding epidemiological studies of the incidence rate of melanomas in the Livermore area. The source of the increased incidences is not purported or directly linked by any evidence to LLNL operations or to low-level radiation.

Comment 101

An important thing is, before you allow anything to happen out there, anything, not on an interim basis, anyway, there should be a background survey of all the radioactive trash around the Laboratory so you have a background to be able to come back and check to see whether they're contaminating above and beyond what's there now.

You shouldn't even consider giving them permission to be involved in this hazardous undertaking unless there's a complete monitored internal and external expertise of what is there now, especially out east of the Laboratory -- all around town as far as that goes.

There should be a monitor report in every annual review that's published for the material that's -- both in organic material, what's in the water and what's in the air.

And the methods for determining this should have an internal and external review. Just because they say they've done the tritium with a Lockheed technique, man that scares me right there. Lockheed carries no weight with me because of the inadequate procedures -- got a fancy name. They are not, even now, doing the organically-bound tritium, which they should do in every year's report. I'll bet you this year's report comes out and the organically-bound tritium in this area is not in it. It hasn't been in it for years. Los Alamos doesn't do it either.

[1.g]

Response

As explained in the response to Comment 58, the management of radioactive materials is beyond DTSC's jurisdiction.

Comment 102

The amount of plutonium found in the park is below regulatory concern. Plutonium is not a naturally occurring thing. Where did it come from? It should not have been there. Should not be there. All of these things that are escaping beyond the fence should not be allowed.

[1.h]

Response

As explained in the response to Comment 58, the management of radioactive materials is beyond DTSC's jurisdiction. Comment 58 also contains information and an update for activities relating to the plutonium contamination found at Big Trees Park.

Comment 103

When you allow 20,000 picocuries in a liter of water for people to drink, I think that's grotesque. EPA and others are trying to get it raised up a factor of three up to 60,000, ballpark. That's criminal.

I don't care if the committees have given it to you and you -- I know that in a way you've got to abide by these things that these professional committees give you. But think about it. They [the rules] are manmade. They're changing the rules right now so they don't have to clean up. It's cheaper for them not to clean up the crap that they've got messed up around the country. And you've got to keep that in mind.

Do you know that 20,000 picocuries means that a Geiger counter can't even count that fast in a liter of water? That means 740 counts a second. If a Geiger counter could count the radioactive disintegrations of tritium in a quart of water that they want to think is safe to drink, it can't do it because it blanks out. It can't count but a few hundred a second. But that's 740 counts. They want to triple that. That's gross. I think that is immoral.

And to have public committees accept it because high sounding, decorated Department of Energy people who want to protect themselves and the operation tells you that it's okay to up that by three times? It's sick. I think 20,000 picocuries allowable in a liter of water is sick. I really do.

Think about it. What you think, not the rules you're going to have to follow by law -- I know the game is to get these things ruled out. And then people think it's a law or a rule and so on, and so it must be okay.

I ask that you do your homework independently. It's important.

I pick on tritium, because it's a gross material which is being turned loose because they can't control it. They're sloppy. It costs them too much to do it. And the regulators are letting them get by with it. And so since the regulators allow them to get 20,000 picocuries in drinking water per liter, why not take it up a factor of 5 or 10? The regulators are just going with the crowd. Do your homework. Because you're protecting me -- not me anymore. I'm too old. I'm talking about the children, the grandchildren, your kids.

[1.g]

Response

DTSC acknowledges the commenter's concern regarding tritium in drinking water. However, the setting of drinking water limits is beyond the authority granted to DTSC. It is the responsibility of the USEPA to set the appropriate drinking water limits which include limits for tritium. These limits are considered protective because they are based on human health effects (EPA Office of Groundwater and Drinking Water (www.epa.gov/OGWDW/wot/appa.html)).

LLNL's waste management operations do not involve direct discharges to sources of public drinking water or surface waters or groundwater. Treated wastewater from HWM operations can be released to the sewer and into the City of Livermore Water Reclamation Plant (LWRP). The LWRP, however, does not set the radioactive concentration limits in the wastewater it receives from LLNL but defers oversight of such limits to DOE who has been given authority by USEPA to regulate its own facilities (10CFR30.12). Based on standards set by USEPA and NRC, DOE has set isotopic specific limits for wastewater discharges (under DOE order 5400.5). LLNL samples and monitors its wastewater discharges at the outfall for radioactivity and reports to LWRP on a monthly basis. LLNL is also required to prepare a Site Annual Environmental Report which contains the results of its monitoring activities for the year.

Comment 104

If I were to show you a graph of what is acceptable radiation it's been going down since the '40s. People have been fighting it and screaming and defending themselves with this for umpteen years. Now that graph is approaching zero. And in some radiation committees it is zero. There is no safe dose. And to use cancer here as a criteria, you're making a serious mistake. They're wading you into deep water.

[1.g]

Response

As explained in the response to Comment 58, the management of radioactive materials is beyond DTSC's regulatory jurisdiction. The amount of radiation released to the air from LLNL is regulated under the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) program which requires LLNL to measure or estimate releases from all radiological operations and model the subsequent offsite doses for comparison to specified dose standards. The standards set by NESHAPs are considered protective of public health based upon currently accepted knowledge about the potential health effects from exposure to ionizing radiation. LLNL has operated under NESHAPs since 1991. In that time, radionuclide emissions monitored from LLNL has consistently remained well below the NESHAPs standards.

In addition to addressing the potential cancer risk associated with operation of the hazardous waste management areas, the Health Risk Assessment prepare for the Project evaluated both acute (maximum one-hour) and chronic (30-year) non-cancer health effects. This evaluation considered the most sensitive organ or system (e.g., liver, kidney, lung, reproductive system, Central Nervous System) affected by each chemical, and used non-cancer end-points e.g., central nervous system depression, in the determination of potential effect (see Section 7 of the HRA).

Comment 105

If they're going to handle the hot cell material, those hot cells still stand out there. If they're going to run those hot cells through that plant, man, that scares me.

[1.g]

Response

Although DTSC does not have jurisdiction over the management of radioactive materials, LLNL is required to comply with the AEA and DOE Orders that place administrative nuclide limits for single containers of radioactive waste stored in the HWM facilities. There are also facility radionuclide limits to ensure safety of personnel, the public, and environment. The DWTF complex must be operated within the limits of a category 3 nuclear facility in accordance with current DOE orders and directives.

Comment 106

I don't see, in this facility, how they're going to handle radioactive hydrogen in any of this stuff. And I know they've got it all over the place. And if that NIF comes, they're going to have more. And radioactive hydrogen ties up very promptly with the water molecule. And the water molecule absorbs onto anything. I don't remember how many angstroms deep on a piece of glass. Man it is difficult to remove.

[1.g]

Response

The Project will involve the storage and/or treatment of mixed waste, some of which may contain radioactive hydrogen or tritium. However, as explained in the responses to Comments 58 and 104, the amount of radiation released from the site is regulated under the NESHAP program which requires LLNL to keep an inventory of releases and to report them on an annual basis. These reporting requirements will ensure that LLNL is not releasing radionuclides beyond regulatory limits which are considered safe to human health.

Comment 107

Tritium is hard to handle because it dissolves in everything and will diffuse through everything. I know it's hard to handle. But if they can't handle it properly -- and I don't see in that thing that you hand out here how they're going to handle tritium. I think they're going to dump it, if it isn't already dumped before it gets to that facility.

[1.g]

Response

The Project will involve the storage and/or treatment of mixed waste, some of which may contain radioactive hydrogen or tritium. As explained in response to Comment 58, a dual regulatory framework exists for mixed waste. USEPA or authorized states regulates the hazardous component. The NRC or the DOE regulates the radioactive component. Therefore, the management of mixed waste will be required to satisfy both DOE and DTSC requirements. DTSC will ensure that LLNL handles the hazardous component of mixed waste properly through enforcement of its Permit conditions and the procedures specified in its Permit Application. For example, to prevent improper disposal of mixed waste, DTSC prohibits waste from being disposed of onsite, requires the use of manifests that account for every container received from Site 300 or that are shipped offsite to other treatment, storage and/or disposal facilities, requires storage and treatment to be conducted only within areas that have secondary containment, requires buildings, tanks systems, and key structural components to be

designed to withstand failure due to seismic events, and requires daily inspection of treatment and storage areas to ensure they are free of leaks and spills and that containers are in good condition.

In addition, LLNL is also required to comply with regulatory requirements, including DOE Order 5820.2 (Radioactive Waste Management), 5400.5 (Radiation Protection of the Public and the Environment) and 10 CFR 20.2003 (Disposal by release into the sanitary sewer) to ensure that the radioactive component of mixed waste are managed properly. The purpose of DOE Order 5400.5 is to establish standards and requirements for operations conducted by DOE and DOE contractors with respect to protection of members of the public and the environment against undue risk from radiation. This Order adopts current guidance and standards issued by national and international authoritative bodies (such as the International Commission on Radiological Protection) on radiation protection, as well as incorporates current regulatory requirements applicable to DOE operations.

It is DOE's objective to operate its facilities and conduct its activities so that potential exposures to members of the public remain as far below the limits as is reasonably achievable (ALARA); and to protect the environment by complying with applicable rules and regulations.

It is also a DOE objective that DOE facilities have the capabilities, consistent with the types of operations conducted, to monitor routine and non-routine releases to assess doses to members of the public.

Pursuant to DOE Orders, LLNL has developed internal discharge limits for tritium to the sanitary sewer for individual discharges and for the daily total. LLNL monitors its discharges through daily composite sampling at the B196 outfall facilities. The monthly average tritium concentrations over the past 10 years have been at least 10 times lower than the DOE 5400.5 monthly average tritium requirement [LLNL, 1997].

Furthermore, LLNL is required to comply with radionuclide NESHAPs (40 CFR 61, Subpart H), currently administered by the U.S. EPA Region IX. NESHAPs limits the radiation dose from air emissions at the Livermore site to 10 mrem/y at the location of the maximally exposed member of the public. A combination of ambient air monitoring data and treatment data are used to estimate tritium emissions from HWM operations. LLNL will install continuous samplers for tritium at the DWTF so that tritium emissions from DWTF operations can be measured. The potential doses from HWM operations including all radionuclides used are calculated and are lower than the regulatory limit. Annually, the doses from HWM operations are combined with doses from other operations at the Livermore site having the potential for air release of radionuclides. The resulting annual dose from potential air emissions including all site operations is also less than the NESHAPs limit, or 10 mrem.

DTSC finds that the standards imposed by all regulatory agencies as explained above would ensure proper management of mixed waste containing tritium.

Reference:

LLNL, 1997 - Environmental Report 1997, UCRL-50027-97.

WASTE REDUCTION

Comment 108

If wastestream reduction is a component of the Part B application, insufficient data is provided [in the IS] upon which to render any assessment of the efficacy of such reduction since there is no identification of which projects generate which streams.

[8]

Response

Information on wastestream reduction is not one of the required components of a Part B Permit Application under Title 22, Chapter 20, Article 2. However, another law, the Hazardous Waste Source Reduction and Management Review Act of 1989 (more commonly known as SB 14), requires hazardous waste generators to take a serious look at source reduction as the preferred method of managing waste. Generators subject to SB 14 are required to evaluate source reduction alternatives, set goals and document the results in a plan and summary. Generators must also document their accomplishments in a performance report and summary. Both the plan, and report must be available onsite and readily available for an inspector to review. The summary must be filed with DTSC starting in September 1999. A copy of the documents must also be made available for public review. In addition, DTSC may request that a copy of the plan and report be submitted. DTSC evaluated LLNL's Pollution Prevention Plan, dated April 1997, and provided comments on those areas which did not satisfy SB 14 requirements. These comments are being incorporated by LLNL in their new source reduction plan due in September 1999.

LLNL has been conducting formalized pollution prevention activities since 1990. As a result of LLNL's proactive Pollution Prevention Program, the trend since 1990 has been a significant reduction in waste generation. Using 1993 as a baseline, LLNL Main Site and Site 300 combined have achieved a 73% reduction in radioactive waste, a 38% reduction in mixed low-level waste, a 62% reduction in hazardous waste and a 22% reduction in non-hazardous wastes generated at the end of 1997 [LLNL, 1998]. More than three fourths of the waste reduced are attributed to operations at the Main Site. Such waste reduction efforts will continue through LLNL's Pollution Prevention Group which was established to investigate and identify opportunities to reduce pollution, provide technical guidance on pollution prevention projects, and select and design waste-reduction technologies and equipment that are also cost and resource effective.

To emphasize the importance of the Permittee complying with SB14 statutory obligations, a condition was added under Section III.7 of LLNL's Permit which requires LLNL to comply with the Hazardous Waste Source Reduction and Management Review Act (SB 14) requirements (explained above) that are specified in the Health and Safety Code, sections 25244.19, 25244.20 and 25244.21, and any subsequent applicable statutes or regulations promulgated thereunder.

Reference:

LLNL, 1998 - "1997 Comprehensive Opportunity Assessment for Pollution Prevention at Lawrence Livermore National Laboratory," UCRL-AR-127890-97, December 1998.

Comment 109

I suggest that serious consideration be given to requiring significant source reduction strategies at LLNL as part of the conditions upon which LLNL can operate its hazardous waste treatment operations. The simplest way to reduce environmental and health risks to workers and the community is to produce less waste.

[11]

Response

As explained in response to Comment 108, SB 14 already requires generators to identify major hazardous wastestreams, evaluate source reduction opportunities, and prepare a plan and report to document these efforts. To emphasize the importance of the Permittee complying with SB14 statutory obligations, a condition was added under Section III.7 of LLNL's Permit which requires LLNL to comply with the Hazardous Waste Source Reduction and Management Review Act (SB 14) requirements (explained above) that are specified in the Health and Safety Code, sections 25244.19,

Comment 110

Waste source reduction must be an absolute priority!

[15]

Response

Comment is noted. DTSC's first preference and the priorities set by the California Health and Safety Code are that hazardous waste not be generated at all. If it must be generated, we prefer that it be recycled or otherwise managed onsite. It is in this way that LLNL's proposed onsite hazardous waste treatment and storage activities serve a useful purpose. The permit conditions imposed would ensure that source reduction be implemented to the extent feasible. Also, please see response to Comment 108.

WASTE ACCUMULATION AREAS

Comment 111

There's no discussion [in the IS] of the 90-day temporary holding areas.

[1.d]

Response

The Project analyzed in the Initial Study consists of areas which are required (according to Health and Safety Code, Chapter 6.5) to be permitted for the management of hazardous waste. There is no discussion of 90-day Waste Accumulation Areas (WAAs) included in the Permit Application, draft Permit or Initial Study because such areas are not subject to permit requirements and therefore, were not considered part of the Project.

Comment 112

The IS does not adequately explain the relationship between the temporary holding sites allowed under RCRA with the ultimate treatment and storage facilities. Historically, LLNL has maintained wastes at the temporary sites longer than the statutory period, and further has restricted inspection of these areas. The IS contains no references to inspection records concerning these areas.

[8]

Response

As stated in response to Comment 111, information (including inspection records) on temporary holding sites is not discussed in the IS because they are not part of the Project under consideration for a permit. However, the fact sheet (dated September 9, 1997) issued for the Project included a section on LLNL's enforcement history which summarized the violations found between 1993 and 1997 at temporary holding sites (or generator areas) and permitted units. Although violations in 1993 and 1994 included the storage of hazardous waste over 90 days in accumulations areas, subsequent inspections in 1996 and 1997 did not reveal a repeat of the violation.

Regulations allow generators to store hazardous waste onsite for 90 days or less without a permit provided that they comply with the requirements specified under Title 22, Section 66262.34. One of these requirements is for the owner or operator to ensure that the date upon which each period of accumulation begins is clearly marked and visible for inspection on each container. LLNL complies with this requirement by using a Waste Disposal Requisition Form (WDR) which accompanies the waste from the waste's point of generation through its acceptance in a permitted storage unit or its

shipment offsite. The WDR includes information such as where the waste was generated, the dates on which waste generation started and stopped, and a complete chemical and physical description of the waste. During a generator inspection, the DTSC inspector can request a list of all satellite accumulation and 90-day storage areas. Inspection of such areas can then be conducted and its compliance checked against regulations using the information on the WDRs (such as start date of accumulation and waste composition) which are attached to each container.

Under the Hazardous Waste Facility Permit, LLNL will be authorized to store hazardous waste for a maximum of one calendar year. Conditions on storage limits and container labeling requirements can be found in Permit Sections IV.10 and IV.11, respectively. As indicated in the table listing the changes made from the draft to the final Permit, Permit Sections IV.10(a) through (c) and IV.11(b) were revised to clarify storage limits for STP and lab packed wastes.

In regards to access restrictions into waste accumulation areas, LLNL is required to allow regulatory agency inspectors access to all hazardous management areas, including generator areas.

For the commenter's information, the relationship between temporary holding sites and permitted storage sites is as follows: According to Health and Safety Code section 25123.3 and 22 CCR section 66262.34, generators are allowed to accumulate hazardous waste onsite without a grant of authorization from DTSC in two ways --- "90-day" accumulation and "satellite" accumulation.

In order for a generator accumulation activity to qualify for management under the "90-day rules" the hazardous waste must have been generated onsite, be accumulated in containers or tanks, and the accumulation activity must be operated so as to ensure that hazardous waste is accumulated at the generator site for no more than 90 days. Upon reaching the 90-day accumulation time limit, the hazardous waste must immediately be moved to an onsite or offsite authorized hazardous waste facility, unless an extension has been obtained under 22 CCR section 66262.35.

In order for a generator accumulation activity to qualify for management under the "satellite accumulation rules", the hazardous waste must be accumulated in containers located in the same or adjacent room or work area where the waste is generated and must be under the control of the operator of the process generating the waste. A waste initially accumulated under the "satellite" accumulation rules must be moved to an authorized onsite or offsite hazardous waste facility within one year from the initial "satellite" accumulation date or within 90 days from when the 55-gallon limit is reached, whichever occurs first.

If the generator is unable to comply with either the "90-day accumulation rules" or the "satellite accumulation rules", then their storage activities must be authorized under a permit granted by DTSC. At an authorized hazardous waste facility, storage of hazardous waste is normally limited to one year. In the case of a generator, such as LLNL, which also owns/operates an authorized storage facility located onsite, this one-year limit does not include the time during which the waste is held in a "90-day" or "satellite" accumulation area prior to being moved to the authorized storage facility.

Comment 113

Also we have an ongoing concern with the satellite accumulation areas. The Lab has never provided the State with any lists of its satellite accumulation areas, as far as we can tell, insisting that the waste there is kept temporarily.

An inspection is quite difficult to carry out if the State doesn't know where they are. I mean, let's be blunt. You can't even pretend to inspect something you don't know where it is. You don't get to go onsite and drive around unescorted anywhere you want to go. This is a nuclear weapons facility.

Also, in the past, state inspectors have issued notices of deficiency to the Lab for waste stored over the 90-day limit in some of these other areas. So that whole issue needs to be settled before you move forward with the Permit.

[1.a, 1.c, 12]

Response

Generators operating satellite accumulation areas are not required by law to provide a list of such areas to DTSC. However, during DTSC's inspections, LLNL is required to provide any information, including a list of satellite accumulation areas, if requested by the DTSC inspector. Regardless of whether a list of accumulation areas is provided prior to a DTSC inspection, DTSC has the authority to inspect any area where hazardous waste activities are suspected to be occurring. LLNL is required to allow regulatory agency inspectors access to all hazardous management areas, including generators areas. It is, however, important to point out that inspectors that visit large industrial sites are accompanied by site staff and do not have the freedom to just walk around the laboratory complex due in part to safety concerns and liability of facilities relative to visitors. During inspections at LLNL, DTSC inspectors identify areas for inspection and they are escorted to any generator or permitted hazardous waste areas requested.

Please see response to Comment 112 for discussion on 90-day storage violations.

PART B APPLICATION

Comment 114

First of all, I just wanted to say that I did get a chance to go look at the 11-volume Application that the Livermore Lab has made for this Permit. And just a couple of overall things.

First of all, there were a lot of typographical errors. And it just indicates to me there's a lack of care taken in preparing this. That just stood out immediately.

Some pages were missing, such as one of the table of contents, number 2, for, I think, the Part A Permit was missing.

Another thing is that I know, originally, there were many more volumes involved and that the 11 volumes that I reviewed were sort of pared down from quite a large number of pages.

And this is a very complex, major facility for nuclear weapons design work. And I have seen other administrative records for other projects for small companies that were much more detailed and voluminous than this. And somehow it's not reassuring to me to see somehow a miniaturized or shrunken version of something.

I would feel much better, even if I had to spend a much longer time reviewing many more documents, to know that is there and I can go and look at it in detail.

[1.b]

Response

Comment noted. DTSC has attempted to correct any typographical errors found in the Permit Application and ensured that all documents placed in the repositories are complete. As for the Permit Application, the commenter is correct in stating that the current 11-volume application is a reduction from the 45-volume application received in 1994. This reduction was the result of the deletion of information on the Area 514 facility, which will be closed in the future, and an effort to remove redundant information while preserving the required information specified by regulations.

Comment 115

Also I do think that DTSC has sort of accepted this 11-volume Application sort of as a basic game plan without criticizing much. There's a lot to look at here. It's not just a pass-it-over-with-a-rubber-stamp.

[1.b]

Response

Title 22, Cal. Code Regs., Section 66271.2 requires DTSC to review a Permit Application for completeness according to the provisions of the Health and Safety Code and to notify the applicant in writing whether the application is complete. If the application is incomplete, DTSC is required to send a written notice to the applicant specifying those parts of the application which are incomplete and including a list and thorough description of the specific information needed to complete the application. DTSC reviewed LLNL's Permit Application and prepared a Notice Of Deficiency (NOD), consisting of 160 comments, that was issued on March 7, 1997. DTSC deemed the application complete on September 6, 1997. Between March and September 1997, DTSC provided comments and guidance to LLNL through various working meetings and phone calls to ensure that the deficiencies identified were adequately addressed.

In addition, DTSC reevaluated the Permit Application after receiving comments during the public comments period held between September 9, 1997 and December 9, 1997. This review resulted in a revised Permit Application being submitted in October 1998 containing changes to the Waste Analysis Plan, Training Plan, Contingency Plan, and Waste Management Practices.

Comment 116

The locations of drains within the facility are not shown on the diagrams, making it difficult to assess the potential for spills into either the sanitary or stormwater collection systems. This should be addressed both on the diagrams and in the test sections of the document.

[3]

Response

The proposed hazardous waste management facilities at the Main Site do not have floor drains in the normal sense of draining to a sewer or stormwater system. The secondary containment is designed to handle a spill from a waste container. In case of a fire with the fire sprinkler system activated, an overflow system is designed to drain the excess water into an underground tank. This tank is not connected to either the sewer system or the storm water system. In general, secondary containments in storage areas are sloped towards a grated trench and/or a sump, except for the secondary containment area for the freezer which has its own metal pan as a secondary containment. Typically, trenches are sloped toward a sump to facilitate the detection and collection of accumulated liquids. Accumulated liquids are removed manually using portable equipment such as pumps, containers, mops and buckets. Some of the existing secondary containment areas have drains. These drains are not connected to the sewer discharge lines and are locked. Accumulated liquids are collected and analyzed as necessary for proper handling.

Discharge to sewer is strictly controlled by first storing the wastewater in a holding tank from which a sample is taken and analyzed. Wastewater associated with analytical results that do not meet discharge criteria will not be discharged but sent for retreatment. As mentioned before, in the event of a spill, spilled materials will be collected and characterized. In hazardous waste management areas, any accumulated liquids are collected, characterized and handled properly.

HEALTH RISK

Comment 117

Consequently, the IS does not disclose the toxicity or risk to human health from the wastes in their unconfined, unmitigated state.

[1.d, 8]

Response

The IS does not address toxicity or risk to human health from the wastes in their unconfined, unmitigated state because the facility would not be allowed to operate in that manner and this is not the project proposed for approval. The imposition of environmental controls is a normal part of permitting hazardous waste facilities operations. This can occur either through design by the applicant in its Permit Application or by DTSC in its conditions of permit approval. LLNL HWM Facilities must meet and operate within U. S. Department of Energy (DOE) design, administrative and operational criteria that ensure the risk of upset is insignificant, even when the environmental controls, which could reduce the consequences of a release even further do not work as planned. Consequently, when these items do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant. See the response to Comment 35.

Comment 118

Now I was paid to handle it. But people outside the fence are not paid to be exposed to any of the crap that gets over the fence, through the fence or under the fence. That I object to. And they should exercise the best control known, not past techniques.

[1.g]

Response

DTSC agrees that individuals offsite should not be exposed to harmful air emissions that may be generated from facilities treating and/or storing hazardous waste. The laws require any person wishing to manage hazardous waste to design its facility with appropriate safety controls. In LLNL's Permit Application, a description of engineering controls such as secondary containment systems, fire protection systems, HEPA-filter local ventilation systems, scrubber off-gas systems, use of closed waste containers, electric interlocks, emergency shut-off controls, fenced areas and signs to alert personnel to hazards has been included. The Permit Application also describes administrative controls that will be implemented including, radiation monitoring, pre-operational inspections of treatment systems, personnel training and operating procedures. DTSC has reviewed the engineering and

administrative controls of the proposed facility and finds that sufficient safety and back-up features have been incorporated that are protective of public health and the environment in the event of an upset. Additionally, LLNL HWM Facilities must meet and operate within U. S. Department of Energy (DOE) design, administrative and operational criteria that ensure the risk of upset is insignificant, even when the imposition of safety and back-up features, which could reduce the consequences of a release even further, do not work as planned. Consequently, when such safety and back-up features do work as planned, they act to reduce the risks of upset even further, making the risks of upset even more insignificant. See the response to Comment 35.

Additionally, A Health Risk Assessment (HRA) was also prepared that evaluated the routine operations of the proposed Project. The HRA evaluated the potential cancer risk and non-cancer health effects associated with routine operations. Results of the HRA showed that exposure to air emissions due to the routine operations of the proposed Project would result in less than significant health impacts.

Comment 119

And in the health risks, I want to see the calculations personally. Don't tell me that the cancer risk is only going to be one in a million. I want to see how you arrived at it. I want to know the biological quality factor you assumed. I want to know the whole thing. And I want to know the risks for non-cancer threats as well as cancer, because cancer is only the tip of the iceberg when it comes to genetic diseases.

[1.g]

Response

The assumptions and methodologies, including all relevant mathematical equations, are presented in the Health Risk Assessment (HRA) dated February 1997, specifically in Sections III through VII. Both cancer and non-cancer threats are characterized and summarized in Tables VII-1 through VII-9. There were literally thousands of calculations that were made to develop the HRA. Because of the sheer number, it is not reasonable to present each one within the body of the text of the HRA. However, the individual equations used to calculate potential exposure and risk are provided. For example, all of Section V is devoted to equations and explanations of how exposure was calculated; Section VII provides the equations used to calculate cancer risk and non-cancer hazard (both chronic and acute, or short-term exposure) from chemicals present in wastes. Section VIII describes the calculations of dose and risk from radionuclides. While Section VIII does not explicitly provide the equations used to calculate dose and risk, it references the US EPA-approved CAP88-PC code model which was used to make these calculations. The model calculates dose for specific radionuclides utilizing dose conversion factors developed by the International Commission on Radiological Protection (ICRP), and presented in ICRP Publication 26, Ann. ICRP 1(1), Pergamon Press, 1977. In the

sections cited above, and also in Section VII, considerable effort was devoted to explaining the equations, how they were developed, how they were applied, and what the underlying assumptions were. The appendices (available on CD-ROM) included with the HRA were prepared to be used by a reviewer of the HRA in conjunction with explanations given in the text, and every datum and every value used in the calculations are presented. The appendices also contain all chemical-specific cancer potency factors and non-cancer reference doses used to calculate cancer risk and non-cancer hazard from chemicals. Every attempt was made to make the data and supporting calculations of the HRA as accessible as possible, so that they could be followed and reconstructed if desired.

The HRA and supporting documents for the Project were made available for public review at three repositories during the public comment period.

Comment 120

And don't listen to this business about the cell is able to repair itself; it has DNA damage control. You ask the people in the biology department of the Laboratory or anyplace else if the sperm cells or the female egg has DNA repair machinery. I already know the answer. You ask, though, so that you get it from them. There is no repair machinery known in the sperm or the egg of the female.

[1.g]

Response

DTSC assumes that the question being asked is whether the dose-response models used [in the Health Risk Assessment to calculate lifetime incremental risk of cancer (attributable to chemical exposure) or cancer mortality risk (radiation exposure)] assume that there is some dose that is "safe" because of the body's inherent ability to repair genetic damage. The answer is that dose-response models used do not rely on such an assumption. In contrast, the models used in the Health Risk Assessment to calculate lifetime incremental risk of cancer (attributable to chemical exposure) or cancer mortality risk (attributable to radiation exposure) assume that there *is* some probability of effect associated with any dose or level of exposure. The models do not rely on or use an assumption that there is some dose that is "safe" because of DNA repair.

Comment 121

Also I want to know, when they do the health assessment, the value of the biological quality factor for tritium that's used in those calculations. Giving me one, that's nonsense. That was before Christ when they used that number when they didn't know any better. But now it's known better that it is not an adequate number for computing the biological threat from radioactive hydrogen. And if you want to see some of the numbers and research work, I'll agree to a five. Some numbers are higher than five.

They want to use a two or a three, I still object. I think five should be used in the biological quality factor for radioactive hydrogen.

[1.g]

Response

The Health Risk Assessment, dated February 1997, utilized the currently accepted value for relative biological effectiveness (RBE) of tritium established by the National Council on Radiation Protection (NCRP) and the International Commission on Radiological Protection (ICRP). That value is one (e.g., ICRP, 1991). There are some fairly recent data which support RBEs for tritium in the range of 1 to 3 [see the December 1993 issue of Health Physics, Vol. 65(6)]. There is also one paper (Straume T., 1995) which supports a RBE for tritium of 5 based on one specific biological endpoint (chromosome dicentrics). However, the NCRP and ICRP establish RBEs and radiation weighting factors after considering the body of scientific evidence available on the subject i.e., data on a number of different biological endpoints. The data of Straume (1995) represent a single piece of evidence which will be evaluated within the context of all available data the next time the ICRP and NCRP review this issue. Until such review occurs, it is not appropriate to use a RBE value different from that established by the scientific community.

References:

ICRP, 1991 - "1990 Recommendations of the International Commission on Radiological Protection", ICRP Publication 60.

Straume T., 1995 - "High-Energy Gamma Rays in Hiroshima and Nagasaki: Implications for Risk and W/sub R/. " Health Physics 69(6): 954-956.

Comment 122

I need to know the numbers, not "it's safe" or "it's only once chance in 1,000,000 that you're going to get cancer." Well, cancer is only the tip of the iceberg; I'll remind you.....That's the reason you need to know the mathematics used to arrive at these uncheckable calculations that they give you. I've been told that the risk in cancer at some little park out here is 1 in 1,000,000. That's an uncheckable number. It's a calculation that cannot be checked. How would you check it?

[1.g]

Response

Please see response to Comment 119.

Comment 123

Anyway, if the biological repair mechanism occurs in the DNA, it's only partially successful.

It has, in humans, the order of -- I don't remember the exact number -- 15 to 20 steps. You screw up any one of those steps and that repair mechanism, that editing and repair mechanism, in the DNA is gone. Just like you screw up any of the 10 steps of going from glycogen to dextrose, your liver can't do it anymore. And each one of those steps requires a different enzyme or catalyst. If you're a chemist, they call it a catalyst; if you're a biologist, they call it an enzyme. And you're stuck.

The only reason you get by with many of these damages is because you have great redundancy in the system. Not that you're not being damaged, but you have redundancy.

And you can't call damage to something that turns up and its feet is up in the air, and it's dead. That is not the proper criteria to be used on people or animals or -- I saw the list of things up there includes -- that should not be the criteria of damage. DNA damage should be the criteria, not cancer. Because I can take my axe and chop off your hand: "Gee, I didn't give you cancer," and get by with it.

Take my little .22 out and shoot you in the leg: "I didn't give you cancer, one in 1,000,000, or one in 10,000,000," see. That's a documentable argument. It should not be allowed. And you should not accept it.

For instance, there is a DNA damage to the Japanese that was imposed upon them in Hiroshima and Nagasaki.

It has to do with the glycophorin molecule on the red blood cell. You can go back now after 40 years and see that damage. And you can place where those people stood relative to where the bomb went off. That good work was done right out here at the Lab. If you want to check on me, call them up. They'll send you reprints on this. They didn't get any DNA repair damage control on those.

[1.g]

Response

There has been extensive work, both at LLNL and throughout the biological sciences community, to develop models of carcinogenesis which relate persistent (i.e., non-repaired) DNA mutations to a probability of cancer. While few will dispute that some mutations may be directly related to the development of cancer, many mutations are not. This is due to a variety of reasons, including death of cells which sustain mutations, or the occurrence of the mutation in a non-critical portion of the genome. The recent data from survivors of Hiroshima and Nagasaki (i.e., an elevated incidence of mutation at the glycophorin A locus, which appears to correlate with an observed increase in the incidence of solid tumors) are perhaps the best examples of an apparent direct correlation between exposure, a specific

mutation, and an elevated incidence of cancer. In general, however, current knowledge of the etiology of cancer does not support simply using the presence of persistent mutations as an end-point determinant of adverse health effect.

As noted in the response to Comment 120, the dose-response models used in the Health Risk Assessment to calculate lifetime incremental risk of cancer (attributable to chemical exposure) or cancer mortality risk (attributable to radiation exposure) assume that there *is* some probability of effect associated with any dose or level of exposure. The models do not rely on or use an assumption that there is some dose that is “safe” because of the body’s inherent ability to repair genetic damage.

Please also note that in addition to addressing the potential cancer risk associated with operation of the hazardous waste management areas, the Health Risk Assessment evaluated both acute (maximum one-hour) and chronic (30-year) non-cancer health effects. This evaluation considered the most sensitive organ or system (e.g., liver, kidney, lung, reproductive system, Central Nervous System) affected by each chemical, and used non-cancer end-points e.g., central nervous system depression, in the determination of potential effect (see Section 7 of the HRA).

Comment 124

There are people now that the radiation damage has now pushed to where that line is approaching background, because after it gets to background the damage is being done naturally.

Well, this is another cop-out. That’s somewhere near background. Background radiation is dangerous. It's damaging you. Don't think you're getting away free. That is one of the processes of evolution. That Laboratory is not paid to help evolution, the process, speed up.

[1.g]

Response

The HRA made no statements or claims concerning background radiation, nor were comparisons made between exposure to background radiation and exposure that may occur as a result of operation of the hazardous waste management areas. The estimated risk of cancer mortality (radionuclides) or cancer risk (chemicals) associated with potential releases from the hazardous waste management areas were expressed as incremental risk i.e., distinct and separate from those cancer risks faced by all persons, a portion of which may be attributable to background radiation.

Comment 125

Another thing for the record that hasn't been stated is a California State Health Department study covering 30 years that was released in 1995 found that children born in Livermore had 6.4 times the malignant melanoma of other children in Alameda County. It makes you wonder why.

[1.h]

Response

The California Department of Health Services (DHS) study (1995) found a “significantly elevated incidence of malignant melanoma among children and young adults living in or born in Livermore (compared to the rest of Alameda County during 1960-1991). That was the only type of cancer found to be elevated since 1970, although there was a small elevation of childhood brain cancer in 1960-69. The DHS drew no conclusion linking LLNL to these cancers. There are no credible LLNL-related "environmental" connections. The weight of the scientific evidence is that melanoma is not the result of ionizing radiation. Melanoma is felt to result primarily from the interaction of ultraviolet exposure with predisposing factors such as fair skin. A separate DHS study of all cancers in the City of Livermore failed to show any significant concerns. The authors of the report pointed out that it was not possible within the scope of the study, to assess whether or not melanoma cases had any “affiliation” with LLNL. The report’s authors also noted that while the results are not likely to be attributable to study methods, they may be attributable to differences in community characteristics or health behaviors.

As it is far from clear whether any cause and effect relationship exists between LLNL and the observed increased incidence of melanoma in this age group, therefore, it is speculative to assume such an association in the absence of data.

Comment 126

A comment now, for your benefit or anyone else's, about cancer, which is generally the flag which people worry about. It's only one of thousands of genetic diseases I mentioned before.

And I want to give you the DNA composition as of 1997, judged to be the percentages of genes involved in cancer, that is uncontrolled growth. As long as the growth is controlled, your hand looks like mine and my lung looks like yours and so on. But if it loses the control of growth, that's called cancer.

It turns out that only 12 percent of the DNA code is involved in division, cell division. The rest of the code is made up of signaling, defense, metabolism, structure, RNA protein synthesis. And there's only 17 percent that's not quite clear what they do.

Now this is from Bill Hazeltine (phonetic), a guy from Harvard. When he sneezes the drug companies fall over dead getting to their office to report it. That's how important his judgment of what the fractions are from partial...

And when it gets to cancer, let me remind you that cancer is practically always a clone of one cell that gets damaged and gets out of growth control. And that makes the cancer. One cell. That's all that has to get properly damaged and lose its growth control. And not kill it. If you kill cells, you're better off having them killed than going over into this uncontrolled growth stage. And radiation does, indeed, kill many cells. It makes the cells commit suicide. One can hope that the radiation damage that does happen to you makes the cell commit suicide. But it doesn't always do that.

It turns loose the thing called the P53. It looks like a boomerang the Indians of South America use to capture animals. And it wraps itself around the DNA and keeps that wrecked DNA from producing the wrong kind of information and proteins.

And that's how it commits suicide. If too many of them get loose and tie up too much of the DNA, the DNA can't make the RNA which makes the proteins which you're required to function. So the cell drops over dead.

As a matter of fact, this is exactly the procedure used in X-ray damage, when you're getting your cancers X-rayed for X-ray treatment. They're purposely taking advantage of cells committing suicide by this process.

I just wanted to remind you that it only takes one cell. And you're a stack of cooperating cells that are 10-to-the-13 or 10-to-the-14 cells. And it only takes one of those to get wrecked. Cosmic rays do it. Radon does it, from your fireplace. All these things. But when you add to it, you are at just additional risk.

And that's the question here is the additional risk that any place should be allowed to expose other people to without their permission. Without their permission.

And I don't think you should say it's an acceptable level of cancer addition. It's not acceptable to me. I doubt it's acceptable to her. You go around and ask if one in 1,000,000 even is acceptable to people. That's what a committee has decided. That's where most of these rules for safe levels of radiation have been made. Committees made up, largely, of the Department of Energy people or those who have a vested interest.

Those are the rules that you have to go by. They've been made up, largely, by people in the Department of Energy. They are not safe rules. The rules are not the law of nature. They're just manmade.

[1.g]

Response

The term “acceptable risk” was used in the context of those risk levels (e.g., 10^{-6} to 10^{-4}) generally acceptable to the regulatory community (see for example, US EPA, 1990). The cancer risks presented in the Health Risk Assessment associated with operation of the hazardous waste management areas represent upper bound probabilities of risk. That is, the risk that is predicted is no greater than the value calculated, and might possibly be zero.

Reference:

US EPA ,1990 - National Oil and Hazardous Substances Pollution Contingency Plan, Final Rule, US Environmental Protection Agency, Washington DC (40CFR Part 300), Fed. Register 55(46), pp.8666-8865.

Comment 127

It's important to request early end points to be identified, not cancer. Because then the system has been damaged beyond control, and you're going to bury it. You've got to get damage points that show up before the system falls apart. And you are a system. You're a cooperative system. And if you allow damage up to the extent it starts to fall apart, I think it's a serious mistake. And they're going to continue this unless there's some control on them.

[1.g]

Response

In addition to addressing the potential cancer risk associated with operation of the hazardous waste management areas, the Health Risk Assessment evaluated both acute (maximum one-hour) and chronic (30-year) non-cancer health effects. This evaluation considered the most sensitive organ or system (e.g., liver, kidney, lung, reproductive system, Central Nervous System) affected by each chemical, and used non-cancer end-points e.g., central nervous system depression, in the determination of potential effect (see Section 7 of the HRA).

GENERAL

Comment 128

During the '40s and '50s, when the U.S. Government was testing nuclear weapons above ground, the AEC said it was perfectly safe, while secretly letting Kodak know when fallout might fog their film.

People were settled in Hanford next to the plutonium reprocessing plant and told that that was perfectly safe. And for decades there have been multiple cancers, heart disease and thyroid disease, per block, in Hanford.

Unwitting subjects have been injected with plutonium in AEC experiments. Every scientist working for the weapons labs who has found health risks from low level radiation has been defunded and hounded into submission or near oblivion, from John Gofman and Art Tamplin to Rosalee Bertell to Thomas Mancuso. And there are many others.

In recent years, right here in Livermore, unexpected levels of plutonium have been found in Big Trees Park. And it was only after local activists insisted that more samples were taken which confirmed the presence of the plutonium.

Again, Livermore Lab officials are saying that it poses no risk to public health, despite the fact that since so few samples have been taken, all that we know about the amount of plutonium in the Park is that there's more than we thought, in despite the honest research into the hazards of low-level radiation having been suppressed.

Just a few weeks ago, while digging holes for the National Ignition Facility, the Lab uncovered over 100 PCB-filled capacitors, many of them leaking, along with scores of waste drums marked "radioactive." Nobody seems to know how they got there.

In view of 50 years' history of lies, suppression of evidence, radiation attack on our own citizens, and despoiling of the earth, sea and air by the weapons labs, the application for a Hazardous Waste Permit must make any prudent citizen very nervous, to say the least. If history is any guide, we can only expect more negligence, more lying, more poisoning from our own government.

[1.e]

Response

The scope of the proposed Project is for the treatment and storage of hazardous and mixed waste, not site cleanup activities or laboratory research operations. DTSC has been conducting annual inspections of LLNL's hazardous waste management facilities since 1984 and is therefore aware of LLNL's enforcement history. Violations have been detected between 1989 and 1992 which resulted in fines and penalties. Subsequent inspections were conducted during 1993, 1994, 1996, and 1997. Although violations were found in 1993 and 1994, none were considered Class 1 or major violations. No violations were noted in 1996. In 1997, three minor violations were cited which have now been corrected.

LLNL's history of violations is carefully considered before a permit determination is made. However, DTSC cannot automatically deny LLNL's Permit Application simply because it has been found in violation. DTSC also considers the gravity of the violation, what actions the owner/operator has taken to correct such violations, and the degree to which the permit has built-in safeguards which will prevent the recurrence of the violation. Therefore, although violations are certainly a matter of concern, DTSC does not find that the violations found at LLNL were of sufficient gravity to warrant denial of a Hazardous Waste Facility Permit.

The purpose of issuing a hazardous waste facility permit is to impose specific permit conditions to protect human health and the environment. It is DTSC's responsibility to monitor compliance by LLNL with regulatory requirements.

Comment 129

Given the facts of prior and ongoing contamination at the Lab, the negligence and deceit routinely practiced by the weapons' establishment and the unknown hazards of the materials involved, anyone who issues a permit for hazardous waste treatment and storage at Livermore Lab would be betraying the trust placed in them as regulators of dangerous activity.

[1.e]

Response

Please see response to Comment 128 regarding enforcement activities within DTSC's jurisdiction and the status of past violations.

Comment 130

I am appalled that consideration would be made to bringing more possible contaminants onto the site that is still working very hard to clean up what's already there.

[1.f]

Response

Except for Site 300, LLNL Main Site would not be authorized to accept waste from offsite sources. Neither would the Main Site be increasing its current hazardous and mixed waste treatment capacity under the proposed Project. Approval of the Project also does not authorize the addition of new programs that may generate more hazardous and mixed waste.

The proposed Project is for the management of hazardous waste that have been or will be generated onsite and Site 300 as a result of LLNL's research and maintenance operations. Whether or not the Project is approved, LLNL would continue to generate wastes as a result of their operations. The Project would basically allow LLNL to manage such wastestreams onsite instead of sending them offsite for treatment, storage, and/or disposal. The potential for future contamination to air, soil and groundwater as a result of the proposed project has been analyzed in the Initial Study prepared for the site. The potential for hazardous waste to contaminate air, soil, and groundwater was found to be less than significant based on the facility's Permit Application which includes both engineering and administrative controls. Engineering controls include but are not limited to air pollution control equipment, secondary containment systems, use of enclosed tanks and containers, and emergency shut-off controls. Administrative controls include procedures for conducting routine inspections for leaks and spills, personnel training and emergency response.

Comment 131

Well, I think there's a lot of homework to be done before they are allowed permission to run that setup as vaguely as I know it with your presentation.

They should not get away with anything without absolute nuts-and-bolts detail to you. And I must say, you'd better do your own homework because, if you're the guardian of the public, you'd better not listen to the foxes that run the henhouse because they think what they're doing is okay. And if you take an example of the open air testing, if you'd talked to many of those people they'd turn purple in the face telling you how honorable it was and how safe it was for the world to do open air testing of bombs.

Now you're going to walk on the body of about 1,000,000 people shortly, at the turn of the century, half a million, anyway. There's the order of 50,000 to 75,000 thyroid cancers now attributable to the open air testing.

What they do inside the fence, I won't criticize, because that's up to them. They're controlling the people. But when it gets outside the fence, I'm on their back. And you should be tight with them and not allow them to give you an argument that, "We've run the plutonium building for years with only two HEPA filters in series." That is criminal. They have been absolutely lucky.

[1.g]

Response

Comment is noted. DTSC has conducted a technical review of LLNL's Permit Application and has found it complete. DTSC believes that the Project, as proposed, is adequate to protect public health and safety during hazardous waste treatment and storage operations.

Comment 132

They give people these nonsense answers and expect you to believe it because it comes from the Laboratory, an internationally famous laboratory. That is true. They've got very good people out there -- a few. But they have got some that are not in that category. So don't believe things without doing your homework on these nuts-and-bolts details that will influence people outside that fence. If you're not, I'm kind of uneasy about your job as a watchdog. It's going to require effort to do your homework.

I highly recommend that you talk to the best people about each of these factors. If you want to talk about the factor on tritium, you call up Thor Strom (phonetic), who's now at the University of Utah. Don't talk to the garbage detail. Call up Thor Strom. If you want to know about filters, call up Vernie, Vern Bergman. He lives right out here. You also -- I can't remember the name -- the guy -- the name at Los Alamos. Talk to him. Get their recommendation about the challenges that will be faced in half a dozen of those buildings. Don't take my word for it. I just happen to be interested because I've been interested in the problem of rain-out from weapons for many years. Also if you have biological questions about the DNA repair and female ovum or the male sperm, call up biomed out here and see.

[1.g]

Response

Comment noted.

Comment 133

That Laboratory is involved in weapons. And if they can't keep their stuff inside the fence anymore, stop it.

[1.g]

Response

DTSC has no jurisdiction over LLNL's mission, which is to serve as a national resource of scientific, technical, and engineering capability with a special focus on national security, as established by Congress. However, the comment is duly noted.

Comment 134

The cold war is over. And it's agencies like yours that can put the screws to this mess, this madness of continued nuclear weapons research.

[1.h]

Response

DTSC has no jurisdiction over LLNL's mission, which is to serve as a national resource of scientific, technical, and engineering capability with a special focus on national security, as established by Congress. However, the comment is duly noted.

Comment 135

We recently signed the comprehensive test ban treaty. We still do tests. We call them subcritical now because they're little tests. They're still nuclear weapons research tests. What do you think the rest of the world thinks about that? The United States, the leader of the free world, as we're often quoted, continuing with these deadly things. And can we honestly say it's so we can keep the peace? What about the nonproliferation treaty? That calls for a total disarmament.

Why do we continue with the same new weapons research that was on the planning tables before the cold war was over that are now called something else, continuing? Why are the budgets for these things increasing instead of decreasing? And you want to give these people, out here at the Lab, permission, on a permanent basis, to continue to do this dirty work.

[1.h]

Response

DTSC has no jurisdiction over LLNL's mission, which is to serve as a national resource of scientific, technical, and engineering capability with a special focus on national security, as established by Congress. However, the comment is duly noted.

Comment 136

I wonder how many of you live real close to the Lab. Would you be concerned?

[1.h]

Response

DTSC is similarly concerned when faced with a decision on any other project of this nature. However, having reviewed LLNL's Permit Application, the Health Risk Assessment, and other related documents, and having placed stringent restrictions on the facility's operations, DTSC believes that the project would be protective of the residents in its vicinity.

Comment 137

And all of our regulatory agencies that are supposed to be our checks and balances on these kinds of activities are failing us. And we find ourselves as lay people in an adversarial role with the very agencies that are there to protect us that have the expertise to look into all of these complicated, complex issues that most lay people don't have the educational background to look into at that detail.

[1.h]

Response

Comment noted.

Comment 138

Just because they've been doing it on an interim basis doesn't mean that now, all of a sudden, it should be a permanent basis. They've failed on the interim basis. Does that mean that you're going to reward them with a permanent permit now? It doesn't make much sense to me.

[1.h]

Response

DTSC is unclear on what the commenter means by “They’ve failed on the interim basis.” Regulations allow hazardous waste facilities in existence before November 19, 1980 to operate under Interim Status until a final permit is approved or denied. In addition to the information submitted on its Permit Application, DTSC has considered LLNL’s operations during Interim Status. DTSC has concluded that LLNL’s operations during Interim Status do not justify denial of LLNL’s Permit Application.

Comment 139

We're watching what's happening. And there may not be very many of us here tonight but there are many people who are concerned; educated, knowledgeable people who know how serious this is.

And we're all accountable for what we do. We're all answerable for what we do. How can you talk to your children and tell them what you do if you aren't doing your dead-level best to protect them and the future of all of our children.

[1.h]

Response

Comment noted.

Comment 140

The cold war is over. The bear is in a cave or asleep, and that is not an excuse anymore. Protecting this country from comets and planetoids and whatnot, I think, is a lame excuse.

Now, I agree to this. I know that the people here won't always agree with me. But I don't think we can do away with nuclear weapons yet. It would be nice if we could, but I don't think we can. But, in the meantime, I think the people that produce them have got to be required to do the stuff carefully. No more what has been done in the past. And that should not be a baseline, what we did in the past. It's what is the best thing you can do right now. And it's not being done very well. I'm sad to report that. I would like to see same effort in controlling our radioactive wastes that went into making the bomb in the first place, getting that level of people on the job, not rejects from projects that don't want them anymore, where they can't pull their weight in a good technical effort. I say getting the best people on this problem now. Not the garbage detail people at all. It's too serious a thing to let go.

Look what we're doing now with the high-level waste question. And the people that have been on it, it's too bad. They've been third-raters. And now all that money is wasted. I'm just sorry to say you've

got to get top-grade people in on it. The same effort that went into making the bomb in the first place. Get that level of effort on it. And don't back off. And don't become lap dogs for the Department of Energy. I think that's a mistake. Keep being a watchdog.

[1.g]

Response

Comment is noted. DTSC intends to regulate LLNL at the same current regulatory standards as private facilities and believes that its permit is adequate to do so. However, except for its intent to manage hazardous and mixed waste onsite, DTSC does not have jurisdiction over DOE's other missions. As explained in response to Comment 58, DTSC does not regulate the radioactive portion of the waste under this permit. DOE regulates the radioactive component and have their own orders which apply to the radioactive component at their respective sites and at their contractor sites.

Comment 141

A formal hearing was held by DTSC Oct. 9. Poorly publicized by the department, it drew about 15 people. Those who spoke, eight in all, opposed the permit. Public Participation, legally required under CEQA, is an extremely important part of the permitting process, as DTSC must take public comment into consideration.

[10]

Response

DTSC announced the start of the initial 45-day public comment period regarding this permitting action on September 9, 1997. A public workshop was held on September 23; a public hearing was held on October 9. The public comment period, public workshop and public hearing were announced in a public notice display advertisement in a local newspaper of general circulation (Tri-Valley Herald) and announced in a paid radio advertisement on a local radio station. DTSC also distributed a 14-page fact sheet to persons on the facility mailing list which described the documents under consideration by DTSC and opportunities for interested community members to get further information and provide input into DTSC's permit decision-making process, including the dates and locations of the public workshop and public hearing. Also announced in the public notice and the fact sheet were the locations of information repositories DTSC had established to make site-related documents and information readily available to community members and other interested parties.

Before the initial public comment period had ended, DTSC extended the public comment period by an additional 45 days, in response to requests by community members at the public hearing, and informed community members of this extension. DTSC strongly agrees that public participation is an important

part of not only CEQA, but also of DTSC's permit decision-making processes. In this regard, DTSC has made a concerted attempt to inform the public about the draft documents and proposed permitting action and to encourage and carefully consider all public comments in coming to its final decision.

Comment 142

The proper and safe storage of such hazardous waste is a national problem. Many states and communities do not want such waste material transported to their area. It does seem more reasonable to store or dispose of such waste at the site it was created.

Having worked at LLNL several years ago, I can attest to their professionalism and ability to safely handle hazardous waste. They are clearly in the best position to do so. I feel approval of a state permit to allow LLNL to store and dispose of hazardous waste material is in the best interest of the public, community and state.

Do not let the public campaign of a very small minority represented by Tri-Valley CAREs unfairly influence your decision in this important matter.

[14]

Response

Comment noted.

ADDENDUM

Information on Cultural/Paleontological Resources

Environmental Setting:

The Initial Study dated September 1997, stated that no known prehistoric archeological remains have been reported for the Livermore site. However, in compliance with Section 106 of the National Historic Preservation Act, the historic value of the LLNL site must be determined. This process would include an evaluation of whether portions of the site are eligible for the National Register. As such, only Building 514 may qualify for listing on the National Register of Historic Places. This building was an engine test pad where one of the world's first jet engines was tested.

Since the preparation of Initial Study, paleontological resources dating to the late Pleistocene were found in the northeast quadrant of the Livermore site during construction of the National Ignition Facility (NIF). Materials found include the fossil remains of two mammoths and two horses within an approximately 700 feet by 300 feet area. The fossil locales lie at a depth of approximately 20 feet to 35 feet below ground surface in an unnamed valley fill deposit that lies directly above the Livermore Formation. One locale contained the partial skeleton of a mammoth (*mammoth columbi*), including a portion of the skull, teeth, ribs, vertebrae, humerus, and tusk; and a second locale contained a partial pelvis (innominate bone) of a horse (likely *equus*). These materials were excavated under an Antiquities Permit granted to the Department of Energy by the Department of the Interior. The materials will be curated into the collections at the University of California Museum of Paleontology at Berkeley. A third locale was also identified as a partial mammoth skeleton, and a fourth locale was identified as a partial horse skeleton. Because these sites would not be disturbed by construction activities, the exact locations of the fossils were recorded, and the fossils were left in place.

The fossil remains identified as part of NIF construction were managed according to the mitigation measures for prehistoric resources outlined in the 1992 EIS/EIR which requires LLNL employees and contractors to report any evidence of cultural resources unearthed during development excavation at the Main Site; notification of an archaeologist to assess any unearthed resources at the construction site and, if necessary, construction to be stopped to preclude disturbance of any cultural resources; to conduct testing and to recommend mitigation measures in accordance with DOE and CEQA guidelines. In compliance with the prescribed mitigation measures, LLNL conducted the following activities upon discovery of the fossil remains at the NIF construction site:

! Work was stopped in the vicinity of the find and an archaeologist was notified to assess the resource.

! The archaeologist determined that there was no evidence of cultural resources (human remains or artifacts of human origin) present.

- ! The staff of the UC Museum of Paleontology was contacted to identify and assess the importance of the fossil remains and to recommend mitigation measures, if warranted.
- ! The Department of the Interior was notified, and a permit was granted to the Department of Energy under the Antiquities Act of 1906 for excavation of the fossils.
- ! The fossils were excavated under the direction of a paleontologist and will be curated at the University of California Museum of Paleontology.

Analysis of Potential Impacts:

Based on the paleontological findings, the potential of finding additional paleontological material as a result of the proposed Project exists. The DWTF lies approximately 535 feet to the northeast of the nearest fossil locale found at the NIF site. Excavation activities associated with the Project would occur at a depth of 13 feet or less. Although the potential exists for encountering fossils during excavations for the DWTF, this potential is considered low because the numerous subsurface investigations that have already been conducted at the DWTF site, including seismic exploratory trenching to a depth of 12 to 16 feet, soil sampling as deep as 10 feet, installation of monitoring wells ranging from 61 to 105 feet in depth, and trenching to depths of 10 feet for utility connection for adjacent buildings, did not encounter nor reveal evidence of fossil materials at the location. Since no fossil materials were encountered during the subsurface investigations and because the Project will only involve excavation down to a depth of 10 feet compared to the depth of 20 feet where the fossils from the NIF construction site were found, the potential for finding fossil materials at the DWTF construction site is considered low.

Since there is a low potential of finding additional prehistoric resources at the DWTF construction site, no new mitigation measures are warranted in addition to the mitigation measures already specified in the 1992 EIS/EIR, as amended on September 7, 1997. As outlined in the 1992 EIS/EIR, the mitigation measures that will be followed in the event that prehistoric resources are uncovered during excavation would include: 1) Requiring LLNL employees and contractors to report any evidence of cultural resources (including such objects as flakes or tools, bones, and shell) unearthed during development excavation at the LLNL Livermore site; 2) An archaeologist will assess any unearthed resources at the construction site; 3) If necessary, construction will be stopped to preclude disturbance of any cultural resources; 4) Testing would be conducted to determine whether the bones are human or associated with cultural materials. If determined not to be human or associated with cultural materials, then the staff of the UC Museum of Paleontology will be contacted for an assessment of the importance of the find, and guidance on its excavation or preservation for further future study; and 5) Mitigation measures recommended in accordance with DOE and CEQA guidelines.

To comply with the mitigation measures described above, LLNL has accomplished the following:

- 1) An archaeologist was hired who would be available on an "on-call basis" to evaluate cultural

resources unearthed and has the authority to stop work; 2) A training program was established to educate workers on how to recognize cultural resources and artifacts, on the importance of avoiding damage to prehistoric and historic resources, and on procedures for protecting them. Training sessions have been provided to individuals and groups internal and external to LLNL. 3) Prior to the commence of most work, crews will be given a one-page description of what to look for when disturbing the soil; and 4) Contracts will be modified to include standard language requiring contractors to report any evidence of cultural resources unearthed.

Considering that no evidence exists of potential paleontological resources at the DWTF site and because mitigation measures are already required under the 1992 Site-wide EIS/EIR, no impacts to such resources are expected to be posed by the proposed Project.

Summary of October 1998 Changes to June 1996 Permit Application

Section	Description of Revisions	Reason for Change
Part A	Designated uranium bleaching, mercury amalgamation, water reactor, pressure reactor, gas adsorption system as individual management units and specified the individual maximum treatment capacity of each unit. Established maximum capacity for remaining processes in the Small Scale Treatment Lab.	Each of these five processes has a specific design and treatment capacity which was already specified in the Operation Plan. To clarify the types of processes to which the maximum capacity for small scale benchtop operations applies, these processes were designated as individual management units with stated individual maximum capacities and a separate maximum capacity was established for the small scale benchtop operations remaining in the Small Scale Treatment Lab management unit. See the response to Comments 97 & 98.
Volume 1, Part IV, Facility Design and Operations	<ul style="list-style-type: none"> < Added description of containers < Added table of portable tank and tanker specifications < Revised description of waste transfer < Revised description of empty container management < Added information on off-site transport of portable tanks and tank trucks < Enhanced descriptions of miscellaneous equipment & treatment units in 695 S/TUG 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See Comment 66.
Volume 1, Part IV, Facility Design and Operations	Revised description of small scale treatment	Changes made to conform description to the small scale benchtop operations remaining in the Small Scale Treatment Lab management unit after designating the 5 processes discussed above as separate management units. See the response to Comment 98

Section	Description of Revisions	Reason for Change
Volume 1, Part VI, Management Practices	<ul style="list-style-type: none"> < Enhanced description of administrative controls, by adding information on SARs, FSPs, OSPs, TSRs, operating procedures, waste processing plans, HAC, ES&H Integration Worksheet. < Added description of liquid waste transfers < Revised description of lab packing process 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.
	Provided more details on single container inventory limit program	This information was added to provide more effective enforcement of single container inventory limits in view of their importance in ensuring that the risks of upset are insignificant. See the response to Comment 35.
Volume 1, Part VI, Management Practices	<ul style="list-style-type: none"> < Revised description of decontamination of containers, tanks and equipment < Revised section on shipping / manifests < Revised section on facility inspections < Added inspection checklists (including Daily When-In-Use inspection log for B612 Drum/Container Crushing Unit updated) < Added table describing inspections, replacing reference to Inspection Schedule & Guidance < Added list of facility records < Added forms and their descriptions 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.
Volume 1, Part VII, Personnel Training	<ul style="list-style-type: none"> < Deleted details of generator training < Added description of how operators learn about procedures < Revised information on OJT program < Added qualifications of trainers and qualifiers 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.

Section	Description of Revisions	Reason for Change
Volume 4, Appendix III-A (WAP)	<ul style="list-style-type: none"> < Defined roles and responsibilities of generator and various HWM personnel < Added fingerprint analysis as means to verify waste characterization < Added description of legacy waste management < Added section on compatibility analysis of treatment equipment material of construction vs. waste treated < Added record keeping section < Added forms relevant to waste characterization 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.
Volume 5, Appendix IV-B, Compliance Plan for AA, BB, & CC Rules	Information moved to Parts IV and VI	relocated for clarity
Volume 5, Appendix VI-E, Inspection Checklists	Moved to Part VI	relocated for clarity
Volume 5, Appendix VI-F, Example of SSR form	Moved to Part VI	relocated for clarity
Volume 5, Appendix VII-A, HWMD Job Titles, Duties, and Training Programs	Revised to include new facility personnel	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.

Section	Description of Revisions	Reason for Change
Volume 5, Appendix VII-B, Training Program Course Description	<ul style="list-style-type: none"> < Revised to include new courses < Corrected course descriptions of EP5070-001 and 002 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.
Volume 5, Appendix VII-C, Requisite Skills Matrix	<ul style="list-style-type: none"> < Revised to include new facility personnel < Added requirement that drivers need commercial drivers licenses 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.
Volume 6, Appendix VIII-C, Area 612 CSTUG Contingency Plan	Replace with October 1998 Contingency Plan (for 612, 514, 233, 693)	LLNL submitted an updated Contingency Plan for Bldgs 693, 612, 514& 233.
Volume 7, Area 612 CSTUG	Added procedural information to section describing Drum Crushing Unit	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.

Section	Description of Revisions	Reason for Change
Volume 11, Building 695 CSTUG	Made uranium bleaching, mercury amalgamation, water reactor, and pressure reactor individual units; revised descriptions	Each of these five processes has a specific design and treatment capacity which was already specified in the Operation Plan. To clarify the types of processes to which the maximum capacity for small scale benchtop operations applies, these processes were designated as individual management units with stated individual maximum capacities and a separate maximum capacity was established for the small scale benchtop operations remaining in the Small Scale Treatment Lab management unit. See the response to Comments 97 & 98.
Volume 11, Building 695 CSTUG	Revised description of Small Scale Treatment	Changes made to conform description to the small scale benchtop operations remaining in the Small Scale Treatment Lab management unit after designating the 5 processes discussed above as separate management units. See the response to Comment 98.
	<ul style="list-style-type: none"> < Revised description of liquid waste treatment < Added information on safety systems and controls 	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to include more details on facility operations to provide for more effective enforcement of existing Permit requirements. See the response to Comment 66.
	Revised process off-gas system design to provide for compliance with existing design specifications while allowing less frequent changeout of carbon adsorption columns.	Pre-construction design review.

LIST OF CHANGES MADE FROM DRAFT TO FINAL PERMIT

Permit Section	Draft Permit	Final Permit	Reason
I.3	“ATOMIC ENERGY ACT (AEA) RADIOACTIVE WASTE” - the AEA defines high-level radioactive waste, low-level radioactive waste (LLRW), and transuranic waste (TRU). The wastes include source, by-product, and special-nuclear material.	deleted	Term was not used in the permit.
I.4	None	“FFCA” as used herein shall refer to the Federal Facility Compliance Act of 1992.	Added definition of a term used in the permit.
I.5	None	“STP” as used herein shall refer to the Site Treatment Plan for Lawrence Livermore National Laboratory, prepared pursuant to the Federal Facility Compliance Act by the U.S. Department of Energy, dated February 1997.	Added definition of a term used in the permit.
II.5	None	SIZE AND TYPE FOR ANNUAL FACILITY FEES LLNL is categorized as a large storage facility and as a small treatment facility. In accordance with H&SC Section 25205.4(d), LLNL shall pay only the facility fees applicable to a large storage facility.	Added facility size classification for annual facility fees to establish statutory presumption set forth in HSC, Section 25205.19.

Permit Section	Draft Permit	Final Permit	Reason
III.1	The Part "A" Application dated June 28, 1996 and the Part "B" Application titled <i>U.S. Department of Energy Part B Permit Application for Hazardous Waste Treatment and Storage Facilities, Livermore Site, EPA ID No. CA2890012584</i> , Volumes 1-11 (Operation Plan), dated June 28, 1996 (revised March 1997, June 1997, August 1997, are hereby approved and made a part of this permit by reference.	The Part "A" Application dated June 28, 1996 October 1998 and the Part "B" Application titled <i>U.S. Department of Energy Part B Permit Application for Hazardous Waste Treatment and Storage Facilities, Livermore Site, EPA ID No. CA2890012584</i> , Volumes 1-11 (Operation Plan), dated June 28, 1996 (revised March 1997, June 1997, August 1997) October 1998 (Operation Plan), are hereby approved and made a part of this permit by reference. This Operation Plan and any subsequent revisions thereto are subject to the permit modification requirements contained in CCR sections 66270.41 and 66270.42.	Date of Permit Application revised to reflect revisions made after August 1997.
III.2.(g)	None	(g) This Permit includes and incorporates by reference any conditions of waste discharge requirements issued by the State Water Resources Control Board or any of the California Regional Water Quality Control Boards and any conditions imposed pursuant to section 13227 of the Water Code.	Condition is required under the Health and Safety Code, Section 25204.5.
III.3(b)	Issuance of this Permit authorizes the Permittee to install the storage and treatment systems listed in the Operation Plan for the purpose of achieving compliance with the requirements of Division 4.5 of Title 22, CCR.	Deleted	Condition is similar to Part IV.19 of the permit which already authorizes construction. The language does not add anything to enforceability of permit.

Permit Section	Draft Permit	Final Permit	Reason
III.3(b)	None	The Permittee shall not store and/or treat hazardous or mixed wastes that is not identified under "Typical waste streams" for each Form Code listed in Table 2 of this Permit.	Condition added to clarify the specific waste streams that would be allowed under each Form Code. See the response to Comment 46.
III.7	None	<p>WASTE MINIMIZATION CONDITIONS</p> <p>The Permittee shall comply with the Hazardous Waste Source Reduction and Management Review Act (SB 14) requirements that are specified in the H&SC, sections 25244.19, 25244.20 and 25244.21, and any subsequent applicable statutes or regulations promulgated thereunder.</p> <p>This would include submittal of SB 14 documents to DTSC upon request.</p> <p>DTSC may require the Permittee to submit a more detailed status report explaining any deviation from, or changes to, the approved waste minimization plan.</p>	This condition was added to emphasize the importance of Permittee complying with statutory waste minimization obligations. See the response to Comment 109.
IV.2	Upon the issuance of this Permit, the above units will revert to generator status, and close under applicable facility closure performance standards when final closure of Area 612 is performed.	Within 15 calendar days of issuance of this Permit, the above units will revert to generator status, and close under applicable facility closure performance standards when final closure of Area 612 is performed.	The 15 days allows a reasonable time for LLNL to move containers necessary to come into compliance with generator standards.

Permit Section	Draft Permit	Final Permit	Reason
IV.5	The waste analysis procedures and methods given in the Waste Analysis Plan included in the Operation Plan will replace those in the interim status Waste Analysis Plan for the existing Interim Status units.	Deleted and replaced with new permit conditions IV.5.(a) in (d)	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to provide for more effective enforcement of existing Permit requirements by providing more details on how the Waste Analysis Plan should be implemented and to provide a reasonable schedule for transitioning from interim status waste analysis requirements to the permit waste analysis requirements. See the response to Comment 66.
IV.5 (a) - (d)	none	See Attachment 1.	As a result of DTSC's investigation of the July 1997 shredder incident, this section was revised to provide for more effective enforcement of existing Permit requirements by providing more details on how the Waste Analysis Plan should be implemented and to provide a reasonable schedule for transitioning from interim status waste analysis requirements to the permit waste analysis requirements. See the response to Comment 66.

Permit Section	Draft Permit	Final Permit	Reason
IV.6	<p>Within 180 days of the effective date of the Permit, the Permittee shall submit to DTSC for review and approval:</p> <p>(a) descriptions of the waste decontamination operations performed between batches of radioactive and non-radioactive wastes in Building 695 treatment units that will be used to treat both radioactive and non-radioactive wastes, and,</p> <p>(b) descriptions of the operations and methods used for the transfer of solid and liquid waste from containers to the treatment devices in the liquid waste processing area of Building 695.</p>	<p>Within 180 days of the effective date of the Permit, the Permittee shall submit to DTSC for review and approval/concurrence with the descriptions of decontamination procedures to be performed for any Building 695 treatment units that will be used to treat both radioactive and non-radioactive wastes. The procedures shall be designed to reduce the generation of mixed waste. For those units for which decontamination procedures will not be provided, the rationale explaining why the decontamination procedures are not warranted shall be submitted instead.</p>	<p>Language was revised to clarify that decontamination procedures are only required for those units which can be practically decontaminated without generating more mixed waste. Also, the requirement to submit descriptions of methods used for the transfer of solid and liquid waste was deleted since they are already included in the Operation Plan.</p>
IV.7	<p>Upon DTSC's authorization for the Permittee to operate Building 280 CSU and the newly-constructed permitted portions of the DWTF Complex, the Permittee will implement the Transition Plan, attached hereto as Exhibit A.</p>	<p>Upon DTSC's authorization for the Permittee to operate Building 280 CSU and the newly-constructed permitted portions of the DWTF Complex, The Permittee shall follow will implement the Transition Plan, attached hereto as Exhibit A, during the construction of, installation of new equipment at, and the transfer of existing equipment from Upon DTSC's authorization for the Permittee to operate Building 280 CSU and the newly-constructed permitted portions of the DWTF Complex, The Permittee shall follow will implement the Transition Plan, attached hereto as Exhibit A, during the construction of, installation of new equipment at, and the transfer of existing equipment from Area 514 to Building 695.</p>	<p>Condition was revised to correct and clarify the fact that the Transition Plan only applicable to Area 514 and Building 695.</p>

Permit Section	Draft Permit	Final Permit	Reason
IV.8(a)	<p>(a) The Building 695 Small Scale Treatment Laboratory Treatment Unit will consist of the following:</p> <p>.....</p> <p>-the following small scale treatment equipment as described in the Operation Plan: Water Reactor Unit, Pressure Reactor Unit, and Gas Adsorption System. The Gas Adsorption System may operate in Room 1028. The remaining small scale treatment equipment may be operated in Room 1017 and Room 1023;</p> <p>-Room 1025 - Reactive Materials Cell; containing the Uranium Bleaching Unit as described in the Operation Plan.</p>	Text indicated by strikeout has been deleted.	Each of the five processes referenced in the deleted text has a specific design and treatment capacity which was already specified in the Operation Plan. To clarify the types of processes to which the maximum capacity for small scale benchtop operations applies, these processes were designated as individual management units with state individual maximum capacities and a separate maximum capacity was established for the small scale benchtop operations remaining in the Small Scale Treatment Lab management unit. See the response to Comments 97 & 98.
IV.8(b)	Not more than 250 kilograms of small scale treatment wastes shall be subjected to initiation of treatment in all small scale treatment operations in any single day.	Not more than 10 gallons or 38 250 kilograms of small scale treatment wastes shall be subjected to initiation of treatment in all treated using small scale treatment operations in any single day.	Change made to establish maximum capacity for remaining processes in the Small Scale Treatment Lab. See the response to Comment 98.
IV.8(c)	(c) The Small Scale Treatment Laboratory Unit shall not treat hazardous or mixed wastes generated by off-site sources other than LLNL Site 300.	Deleted	This condition is similar to Part IV.14 of the permit which prohibits wastes to be accepted from offsite sources except Site 300. The language does not add anything to enforceability of permit.

Permit Section	Draft Permit	Final Permit	Reason
IV.8(d)	None	Only the treatment processes identified in Table XIV.4-3 of the approved Operation Plan shall be conducted in the Small Scale Treatment Laboratory.	Changes made to conform description to the small scale benchtop operations remaining in the Small Scale Treatment Lab management unit after designating the 5 processes discussed above as separate management units. See the response to Comment 98.
IV.8(e)	(e) Small Scale treatment processes shall not include incineration technologies, open burning, or the application of hazardous waste to the land.	Deleted	The types of processes not allowed to be performed within the SSTL are already described in the Operation Plan and need not be repeated in the Permit.

Permit Section	Draft Permit	Final Permit	Reason
IV.8(f)	<p>For the purposes of this permit, non-routine treatment methods are defined as:</p> <p>(1) Treatment Processes annotated with an asterisk (*) in section 9 of the Waste Analysis Plan (WAP), Volume 4, Appendix III-A, "Treatment Processes Used at LLNL Permitted Facilities";</p> <p>(2) Treatment processes that are not included in the list of treatment processes in the above mentioned WAP, but have been shown to be safe and effective by the completion of successful treatability studies.</p>	Deleted	Deletion of this provision provides for more formal DTSC review of proposed non-routine treatment methods and for public participation in the process. See the response to Comment 98.

Permit Section	Draft Permit	Final Permit	Reason
IV.8(g)	<p>Not less than 45 days before conducting small scale treatment of a waste that requires non-routine treatment methods as described in (f) above, the Permittee shall notify DTSC in writing that it intends to conduct non-routine small scale treatment. The notification will include:</p> <p>(1) A description of the form, composition, the hazardous properties and California or EPA waste campaign, and the estimated daily throughput (<u>campaign - the treatment process or series of processes that are undertaken to treat a particular batch of hazardous or mixed waste</u>); codes that apply. In addition, it must include a description of the radiological classification (LLRW or TRU) and list of radionuclides contributing 95% of the radioactivity.</p> <p>(2) A description of the quantity of the waste to be treated during the treatment campaign, an estimation of the duration of the</p>	Deleted	Deletion of this provision provides for more formal DTSC review of proposed non-routine treatment methods and for public participation in the process. See the response to Comment 98.

Permit Section	Draft Permit	Final Permit	Reason
IV.8(g) continued	<p>(3) A list of the treatment process codes that describe the treatment process(es);</p> <p>(4) A description of the proposed treatment methods, the equipment to be used, and a diagram of the treatment train;</p> <p>(5) An explanation as to why small scale treatment is the appropriate treatment option for the waste.</p>	Deleted	Deletion of this provision provides for more formal DTSC review of proposed non-routine treatment methods and for public participation in the process. See the response to Comment 98.
IV.8(h)(2) &(3)	<p>(2) The dates that each treatment was conducted;</p> <p>(3) The amount of waste treated per treatment campaign;</p>	<p>(2) The dates and amounts that each treatment treated each day by process was conducted;</p> <p>(3) The amount of waste treated per treatment campaign;</p>	Conditions (2) & (3) were combined for clarification.
IV.9(a)	The volume of hazardous and mixed waste stored in each unit may vary; however, the cumulative volume stored in all units (including tanks) at any one time shall not exceed 808,000 gallons.	The total volume of hazardous and mixed regulated and non-regulated waste and materials including radioactive materials subject to the Atomic Energy Act stored in each unit may vary shall not exceed the storage capacities listed in Table 1 of this Permit. however , In addition, the cumulative volume of regulated waste stored in all units (including tanks) at any one time shall not exceed 808,000 gallons.	Condition was revised for clarification.

Permit Section	Draft Permit	Final Permit	Reason
IV.9(c)	In the case of 614 East and 614 West Container Storage Units, the used capacity may be determined by the actual amount of waste held by the containers, as long as a current inventory of the containers and their contained amounts are kept at the unit.	In the case of 614 East and 614 West Container Storage Units, the used capacity may be determined by the actual amount of waste held by the containers, provided that as long as a current inventory of the containers and their contained amounts are maintained kept at for each the cell in each storage unit and is made available to DTSC upon request.	Statement was revised to allow for waste inventory to be maintained and available for DTSC inspection but not required to be kept at the unit location.

Permit Section	Draft Permit	Final Permit	Reason
IV.9(e)	<p>Incompatible liquid wastes shall be stored in separate secondary containment areas according to the general compatibility guidance given in CCR Appendix V. Liquid wastes belonging to the same general compatibility class but with characteristics that are incompatible with other wastes in the same class may be segregated within a containment area by the use of secondary containment pallets. Incompatible solid wastes may be stored in the same containment area if kept separated by a distance of at least eight feet. Incompatible wastes may be staged for treatment in the liquid waste processing area if kept at approximately the same grade, placed on secondary containment pallets, and kept with a separation of at least 8 feet. No double-stacking of secondary containment pallets will be permitted when pallets are being used as a method of separating incompatible wastes.</p>	<p>(e) Incompatible Reactive liquid waste that is incompatible shall be stored in separate secondary containment areas according to the general compatibility guidance provided in Title 22, Cal. Code Regs., Chapter 14, Appendix V; which follows Cal. Code Regs. Section 66264.313. Liquid wastes belonging to the same general compatibility class but with characteristics that are incompatible with other wastes in the same class may be segregated within a containment area by the use of secondary containment pallets. Incompatible solid wastes may be stored in the same containment area if kept separated by a distance of at least eight feet. Incompatible wastes may be staged for treatment in the liquid waste processing area if kept at approximately the same grade, placed on secondary containment pallets, and kept with a separation of at least 8 feet. No double-stacking of secondary containment pallets will be permitted when pallets are being used as a method of separating incompatible wastes.</p> <p>(f) Incompatible solid wastes may be stored in the same containment area if kept separated by a distance of at least eight feet.</p>	<p>Condition IV.9(e) was revised to clarify how incompatibles are to be stored. Language regarding the staging of incompatibles in the processing area was deleted since this is a procedure already described in the Part B application. Also, condition for storage of incompatible solid waste was made into a separate condition (f).</p>

Permit Section	Draft Permit	Final Permit	Reason
IV.10(a)	The Permittee is authorized to store hazardous wastes in the permitted storage areas up to a maximum of one calendar year from date of first acceptance at the hazardous waste handling facility.	The Permittee is authorized to store hazardous waste, including mixed wastes not incorporated into the Site Treatment Plan (STP) that is incorporated by reference and attached to Compliance Order, HWCA 96/97-5002, 2/7/97, in the permitted storage areas units up to a maximum of one calendar year from date of first acceptance at any of the hazardous waste management units facility.	DTSC reviewed Permit Section IV.10 specifying conditions on duration of storage. DTSC determined that this section needed to be revised to clarify storage periods for STP wastes. See the response to Comment 112.
IV.10(b)	The Permittee is authorized to store mixed wastes for periods in excess of one calendar year, provided that the mixed wastes are identified as covered wastes in the updated Federal Facility Compliance Act - site Treatment Plan (STP) for Lawrence Livermore National Laboratory. For all other wastes subject to storage prohibitions under Cal. Code Regs. Section 66268.50, upon storage beyond one calendar year, the Permittee will have the burden of proof to show that the storage was necessary to facility proper recover, treatment or disposal [Cal. Code Regs. 66268.50(c)].	Notwithstanding section (a) of this Part, the Permittee is authorized to store mixed waste which has been incorporated into the STP in the permitted storage areas up to a maximum of one calendar year from the date of DOE's respective notice to DTSC pursuant to Section 2.7.1 of the STP. for periods in excess of one calendar year, provided that the mixed wastes are identified as covered wastes in the updated Federal Facility Compliance Act - Site Treatment Plan (STP) for Lawrence Livermore National Laboratory. For all other wastes subject to storage prohibitions under Cal. Code of Regs. Section 66268.50, upon storage beyond one calendar year, the Permittee will have the burden of proof to show that the storage was necessary to facilitate proper recovery, treatment or disposal [Cal. Code of Regs. 66268.50(c)].	DTSC reviewed Permit Section IV.10 specifying conditions on duration of storage. DTSC determined that this section needed to be revised to ensure that only waste identified in the STP can be stored longer than one year. Language for wastes subject to storage prohibitions was deleted since this is already specifically required by regulation. See the response to Comment 112.

Permit Section	Draft Permit	Final Permit	Reason
IV.10(c)	The Permittee shall notify DTSC in writing if it becomes necessary to store any hazardous waste or mixed waste not yet identified as covered wastes in the STP for greater than one year. The notification shall be made not less than 90 days prior to the one year storage expiration date, and will include the location, amount, composition, physical state and hazards of the waste, as well as the reason why the extended storage period is necessary. In the case of mixed wastes, the permittee shall describe the type of radioactive waste (TRU or LLRW).	Deleted	DTSC reviewed Permit Section IV.10 specifying conditions on duration of storage. DTSC determined that this section needed to be deleted so that waste cannot be stored beyond one year before being identified as covered waste. Deletion of condition makes it imperative for LLNL to obtain approval for the waste to be included as covered wastes prior to one year expiration of storage. Also this would avoid conflict with STP conditions regarding newly identified covered wastes. See the response to Comment 112.

Permit Section	Draft Permit	Final Permit	Reason
IV.11(b)	<p>The Permittee shall mark each lab-packed container (hereinafter known as "lab-pack") with the earliest date of acceptance of any original container to be placed into the lab-pack. This date shall be known as the accumulation date of the lab-pack. The Permittee may store lab-packs in the permitted storage areas for a period of one calendar year from the accumulation date. If lab-packs are accepted from generator accumulation areas, the Permittee may store the lab-packs for a period of one year from the date of acceptance by the permitted storage facility.</p>	<p>The Permittee shall mark each lab-packed container (hereinafter known as "lab-pack") with the earliest date of acceptance of any original container to be placed into the lab-pack. This date shall be known as the accumulation date of the lab-pack. The Permittee may store lab-packs in the permitted storage areas for a period of one calendar year from the accumulation date storage period specified in Permit Section IV.10(a) for the lab-pack. If lab-packs are accepted from generator accumulation areas, the Permittee may store the lab-packs for a period of one year from the date of acceptance by the permitted storage facility.</p>	<p>This section was revised to clarify storage periods for lab packed waste. See the response to Comment 112.</p>

Permit Section	Draft Permit	Final Permit	Reason
IV.13	None	<p>NOTIFICATION</p> <p>In the event of a fire, explosion, or an unplanned sudden or non-sudden release of any material to the environment, the Permittee shall note in the operating record the time, date and details of that incident. Within 24 hours, the Permittee shall verbally notify DTSC of the incident. If necessary, DTSC may require that the Permittee submit a report within 15 days of the incident. The report shall include the date, time and type of event; name and quantity of material(s) involved; extent of injuries, if any; an assessment of actual or potential hazards to human health or the environment, where this is applicable; and estimated quantity and disposition of recovered material that resulted from the incident.</p>	<p>As a result of DTSC's investigation of the July 1997 shredder incident, this section was added to clarify reporting requirements so as to provide for more effective enforcement of existing Permit requirements. See Comment 66.</p>

Permit Section	Draft Permit	Final Permit	Reason
IV.14	None	<p>COMPLIANCE WITH ERPGs</p> <p>The Chemical Hazards Control Program (as described in Part VI.2.6 and Appendix III.A, Waste Analysis Plan, section 4.3.3 of the Part B Application) shall be implemented to ensure that mixed or hazardous waste stored and/or treated in any Storage and/or Treatment Unit Group will not result in an accidental chemical release that would exceed the Emergency Response Planning Guidance (ERPG) level 2 or equivalent value at the nearest site boundary.</p> <p>Each proposed change to hazardous waste operations or hazardous waste facilities which requires completion of an ES&H Integration Worksheet, as described in Part VI.2.1.6 of the Part B Application, must be reviewed to assure that the proposed change will not cause the ERPG-2 (or equivalent) limits to be exceeded at the nearest site boundary. Each proposed change and any additional proposed controls to ensure that the ERPG-2 or equivalent value is not exceeded must be evaluated by LLNL prior to implementation to determine if a permit modification is necessary.</p>	<p>This condition was added to highlight to the Permittee and to DTSC compliance personnel that the Chemical Hazards Control Program is a key to ensuring that the risks of upset are insignificant. See the response to Comment 35.</p> <p>This condition was added to highlight to the Permittee and to DTSC compliance personnel that complying with permit modification requirements is another key to ensuring that the risks of upset are insignificant. See the response to Comment 35.</p>

Permit Section	Draft Permit	Final Permit	Reason
IV.15	Pursuant to H&SC section 25201(a) and 25203, hazardous wastes shall not be disposed of at the facility unless such disposal is properly authorized by DTSC under a permit or grant of interim status.	Pursuant to H&SC section 25201(a) and 25203, hazardous wastes shall not be disposed of at the facility unless such disposal is properly authorized by DTSC under a permit or grant of interim status.	Language was deleted for clarity.
IV.17	None	The Permittee shall submit an updated Contingency Plan which can be applied to all HWM Units listed in Table 1 at least thirty (30) calendar days prior to start of operations at Building 280 CSU and Building 695 S/TUG.	Currently, separate contingency plans exist for Building 280 and Building 695 and another plan that covers Area 612, Area 514, Building 233, and Bldg 693. All 3 plans contain the same information. For ease of enforcement and implementation, one contingency plan for all units will be required.
V	None	See Attachment 2	This section was added to summarize all dates for submittals and implementation of activities required in various sections of the permit.

ATTACHMENT 1

5. WASTE ANALYSIS PLAN

- (a) Except as specified in (b) below, the Permittee shall follow all procedures described in the Waste Analysis Plan (WAP) contained in the approved Operation Plan upon the effective date of this Permit for any waste managed in the units listed in Table 1 and Part IV.3 of this Permit.
- (b) Until all of the tasks listed below are completed, the Permittee shall perform the waste characterization procedures specified in (c) below.

<u>Task</u>	<u>Completion Date</u>
Provide training for personnel required to take Course EP0007	8/11/1999
Have field fingerprint testing capability in place and train personnel its use	9/1/1999
Have laboratory fingerprint testing operational and train personnel its use	9/1/1999
Provide training for personnel required to take Course EP0008	9/30/1999
Complete profile for existing wastestreams that have been identified for profiling	2/30/2000

- (c) Until tasks described in (b) above are completed, the Permittee shall perform the following:
- (1) Newly generated and unprofiled waste shall be characterized through generator knowledge (i.e. his/her knowledge of the waste generating process, physical/chemical properties from experimental data, information from other published sources, or manufacturer's material safety data sheet information). However, whenever generator knowledge is insufficient to adequately characterize the waste for treatment and/or storage, full scale analysis shall be performed in accordance with the WAP.
- (2) Ten percent of newly generated and unprofiled waste shall be randomly selected for verification by sampling and analysis on a weekly basis. If some of the ten percent initially selected is exempt from sampling according to the criteria found on page 15, Vol. 4, of the Part B Application, a substitute waste shall be randomly selected to ensure that a full ten percent is sampled and analyzed.

(3) Profiled waste shall be verified a minimum of once per year by performing fingerprint analysis or full scale analysis if fingerprint methods are not available, unless the waste is exempt from sampling according to the criteria found on p. 15, Vol. 4, of the Part B Application. If verification fails, procedures specified in section 4.4.2 of the WAP shall be followed.

(d) On or before December 31, 1999, the Permittee shall implement the WAP in its entirety and Part IV.5.(c) of this Permit shall no longer be applicable.

ATTACHMENT 2

PART V. COMPLIANCE SCHEDULE

Below is a summary of the major reporting requirements contained in this part of the permit. The summary is provided as a general guide and may not contain all the requirements. Please refer to the specific language of the referenced Permit Section for all the requirements.

<u>Task</u>	<u>Due Date</u>
Revert Area 612-4 and Rooms 104, 105, and 107 located in Building 612 to generator status (Permit Section IV.2)	Within 15 days of effective date of Permit
Submit closure plans for Building 233 and Area 514 (Permit Section IV.4)	180 days after effective date of Permit
Submit decontamination procedures (Permit Section IV.6)	180 days after effective date of Permit
Submit Small Scale Treatment Report (Permit Section IV.8(e))	March 15, 2000 (annually thereafter)
Submit engineer's certification for secondary containment system & tank system (Permit Section IV.16(b))	60 calendar days after completion of construction
Submit construction schedule for new facilities (Permit Section IV.16(d))	30 calendar days prior to construction
Submit as-built drawings of the new facilities (Permit Section IV.16(e))	60 calendar days after completion of new facilities
Submit notification to DTSC to inspect newly constructed facilities (Permit Section IV.16(f))	30 calendar days prior to commencement of operations
Submit updated Contingency Plan (Permit Section IV.17)	30 calendar days prior to start of Building 280 CSU and Building 695 operations